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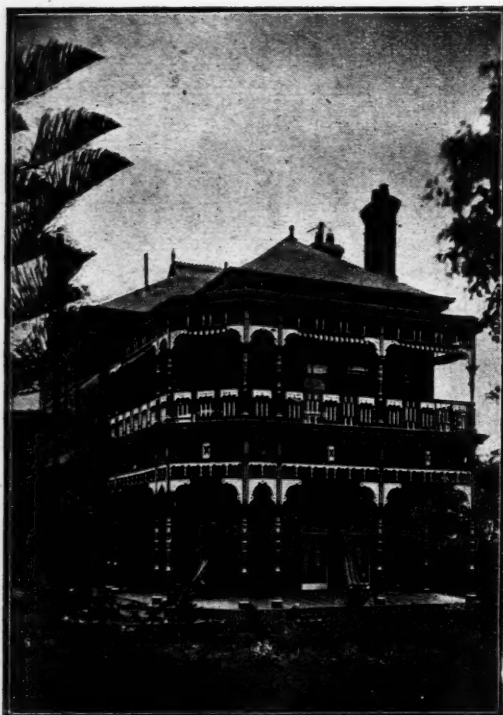
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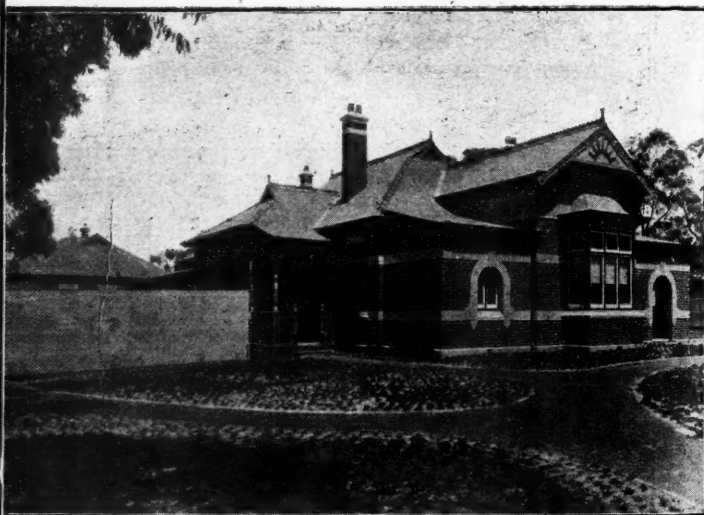
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No. 5.

A PRACTICAL METHOD FOR THE EARLY RECOGNITION OF FEEBLE-MINDEDNESS AND OTHER FORMS OF SOCIAL INEFFICIENCY.

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The war has thrown a lurid light on the many evils and dangers threatening the social fabric, and it is now clear that post-war reconstruction will depend on the mentality and efficiency of the people. This being so, it follows that any community which comprises an appreciable percentage of unrecognized mentally defective persons, will be handicapped in the work of social reconstruction unless the moron can be recognized and adequately treated. Post-war reconstruction and the future interests of the nation alike necessitate the recognition of the socially inefficient.

In 1914 Pearson¹ said:—

It appears to me that the term "mental defective" ought to be replaced by some such term as "social inefficient." We are dealing with a class—at first recognized as school inefficients, because they cannot take their place in the ordinary school community—who develop into "social inefficient." They are not necessarily mental deficients at all. They may have defective will control, but they may equally well have abnormal instincts, and one or other of these factors renders them incapable of taking their part in the common life of the community. . . . We have to see that we are really on the fringe of the biggest problem of the modern State—the question of social inefficiency.

The Medical Journal of Australia, in its issue of March 30, 1918, stated that the public must "be familiarized with the fact that crime and vice are often dependent on mental deficiency, and, finally, that the moron remains a danger to himself and to those with whom he comes in contact, unless the State intervenes and provides for his control throughout life."

Dr. William Healy,² Director of the Psychopathic Institute, Juvenile Court, Chicago, states:—

But the gist of the situation is that mental defect forms the largest single cause of delinquency. . . . Defective offenders, in most cases, upon study, prove to be individuals who easily succumb to social temptations, easily learn from vicious examples, and are easily stimulated to develop criminalistic trends of thought. In other words, in these highly representative members of the so-called criminal type, one must conclude that the development of criminalism is partially the result of environment as well as of innate tendencies.

These characteristic utterances, limited though they be in number, are nevertheless those of authority, and are expressive of expert opinion in three different parts of the world—England, Australia, and America. They could easily be multiplied, both from our own experience as from that of others, but enough has been said to show that to treat crime, prostitution or alcoholism as problems wholly of moral degradation, without recognizing that in many cases there may also be involved a mental deficiency or irresponsibility, is wrong in principle and futile in practice.

In every community prostitutes and criminals are largely recruited from the ranks of the morons, but, unfortunately, the danger to society does not stop at this. Goddard³ says: "Every soldier is liable to have sentry duty . . . in such a position a moron would be a man of clay. He might be tricked into betraying the whole camp."

Groszmann⁴ is equally emphatic in another direction. He says:—

We may admit that aments, or feeble-minded, can have as little recognition as independent citizens of a political body as have demented, or insane. And it may further be accepted that the dull portion of our commonwealth, they who can hardly be expected to have a clear perspective of the purposes and responsibilities of government—"voting cattle," as they are sometimes called—form a grave problem in the regulation of civic rights.

The same writer has some instructive remarks as to the actual financial cost to the community of what he terms "the festering human refuse-heap," and the singular attitude of society thereto. He says:—

The industrial world has long since learned that, in the process of converting raw material into a finished product, waste must be reduced to a minimum. . . . We are beginning to discover that one of the most important raw materials, namely, the human material, is being most wastefully treated. . . . The business of life needs to be placed on the basis of efficiency. The saving is not merely one of money, but, what is vastly more important, one of human souls. . . . It costs the citizens of the United States \$1,100,000,000 each year for police, courts of justice, prisons, charities and correction, and similar forms of self-protection against the festering human refuse-heap. . . . It is a curious fact that the nation is spending only \$600,000,000 annually for schools, churches, and other constructive agencies; in other words, \$500,000,000 less is spent to develop human assets than is spent to keep up the human failures. . . . Investment in proper methods of conversion of waste would reduce the enormous refuse-heap now accumulating in the form of human derelicts, causing it automatically to shrink to reasonable bounds.

What then is a moron, and who are the feeble-minded?

It will suffice at the moment to allow Dr. Goddard³ to answer the question:—

It is now customary for those who are dealing with the problems of levels of intelligence to classify people in terms of mental age, that is to say, to compare them to the average child or youth of various ages.

If a half-grown boy has only the intelligence of a two-year-old baby, he is technically an idiot.

If an adolescent youth has the intelligence of a boy of from three to seven years, he is called an imbecile.

If he has intelligence of from eight to twelve, or possibly fourteen, he is called a moron.

A person who has only the intelligence of a normal boy of twelve or less is considered feeble-minded, and incapable of managing himself or his affairs with ordinary prudence, incapable of holding any responsible position where judgement and commonsense are requisites.

Next in this group come the so-called dull normal people, who show some commonsense and judgement, but never of a high or even average grade.

Dr. Goddard's age levels of moronity may, or may not, be too high—a matter of criticism into which we do not now propose to enter—but they serve their and our immediate purpose. No sane person would dream of en-

trusting his private or business affairs to children and schoolboys, and yet this is exactly what the community does with many of its affairs of State. It permits individuals of extreme mental backwardness, many of them ultimately not more mentally developed than the boy of eight, ten or twelve years of age, to vote on problems of great and vital national importance, to impede the effective work of the schools, to become sexual plague spots in the community, to propagate their kind in legitimate and illegitimate ways, and generally to act as a virulent social poison.

All this is but a part of the price the community pays for its neglect of the study of the root causes of the evil, and of its total indifference to any and every scientific attempt to detect the "sociopath" in childhood. Instances could be multiplied of callous and purposeless murders and crimes perpetrated in every State of the Commonwealth by the mentally defective. There is presumptive evidence for believing that both "Deeming" and Ned Kelly were morons, whilst the majority of the inmates of the Castlemaine (Victoria) reformatory are known to be at moron levels.

The question then arises: are such people of sufficient number as to constitute a social danger? Even with an at present too limited knowledge of the facts the question must still, unhappily, be answered in the affirmative. Goddard³ says:—

There are probably at least 200,000 feeble-minded males in the United States to-day, while, if we include what are technically called "dull normals," we could safely double, or even quadruple, this number.

In "The Distribution and Relations of Educational Abilities," just issued from the London County Council Offices,⁵ Mr. Cyril Burt says:—

Of the children over nine and under fifteen attending the ordinary schools of the Borough, nearly seven hundred appear backward by three years or more: to be precise, 692, or about 4.2%. . . . If we extend the lower age limit from nine to five, and if we further include those backward by two years, the apparent number rises to nearly three thousand, or about one-tenth of all between five and fifteen: the exact figures are 2,907 individuals, or 9.53%. In addition, 25.6%, or more than a quarter, appear a year behind their actual age. Barely one-half—46.4%—are assigned to a grade or standard assumed as normal for their age.

Our own experience, based on an examination of nearly 10,000 Victorian school children, confirms these views as to the prevalence of morosity and mental dulness amongst the school population, and our most recent researches have forced upon us the conclusion that a large proportion of the lower class population never attain mental levels above the age of twelve years, whilst at least 15% of the population would be in one or other of Goddard's five classes of subnormal mentality.

To confront these facts with the mere *ipsa dicta* of unbelief is to emulate the ostrich, who escapes the danger with which he is threatened by burying his head in the sand. It is more to the point to enquire can such cases be detected, and, if so, what is to be done? As regards their recognition, Goddard³ says:

The first point to be emphasized is that these people cannot be detected by their physical appearance. The most dangerous group of the mental defectives are those who are in no way different from the intelligent man; and not only in outward appearance, but in conversation and bearing, these people often pass for normal. They are thought to be simply untutored, and it is supposed that training will bring them up to standard. But

that such is not the case is testified to by the presence of hundreds of such cases in our institutions for the feeble-minded, and by thousands of others who are not in institutions, but who are recognized by those who know the feeble-minded as being mentally weak.

The same writer is particularly emphatic on the point that every officer in the United States Army shall understand that "mental incompetency explains the action of the unsatisfactory recruit more often than any other cause; perhaps more often than all other causes put together." To assist the American officer in realizing these facts, his Government is now calling for 850 trained psychological examiners.

The attitude of Australia towards the problem can, perhaps, be best illustrated by a quotation from Haberman,⁶ though it must be understood that what follows was not written by an Australian, or with any reference to Australia. Haberman says:—

We have a hundred organizations, federations, parent associations, bureaux, etc., devoted to the study of the child—all of them amateurs. . . . But where is the medical college that has a physician devoted to the non-pediatric study of the child . . . a study scientifically pursued with respect for precedents, a regard for authorities, an inkling to thoroughness—based on the fundamentals of physiology, pathology, psychopathology. . . . This so-called decade of the child is, therefore, a superficial, amateur, bungling decade.

Goddard³ has said that the various levels of intelligence which are concerned in morosity and other forms of mental retardation "can now be measured by various psychological methods or tests with rather a high degree of accuracy."

As the results of a prolonged research, we now put forward what we venture to assert is a practical method for the early recognition of feeble-mindedness and other forms of social inefficiency.

(1) The individual's brain capacity is first ascertained, and is compared with the percentile brain capacity of the population. From this it can be seen at a glance whether the individual approximates more nearly to the normal, or to some definitely recognizable form of abnormality. This examination is then supplemented by such physical and psycho-physical tests as have been proved to have diagnostic significance.

(2) The psychological examination is then undertaken, and is carried out as thoroughly as possible. Here again our method does not depend upon the application of any single set of intelligence tests, such as the well-known Binet-Simon tests, but upon a combination of methods. The tests used by the best workers in applied psychology are given, with a view to the evaluation of the most important intellectual and temperamental characteristics which make for the social efficiency of their possessors. Our original contributions in this field (the Porteus tests) have been widely used in America, and have been recommended by Goddard³ for use in the neurological examination of the recruits for the United States of America army. These tests are now incorporated in our present work in a revised and improved form.

(3) Finally, the whole examination is correlated with the clinical, personal, family, and educational history of the individual, and the results interpreted in the light of the individual's social environment.

As the first of these three avenues of approach to the problem is somewhat new—at least in so far as

it is advocated by us—it is necessary to speak a little more fully of the mode in which we employ head measurement as an index of brain capacity.

The hypothesis upon which our work is based is that, as mental development is conditioned by brain capacity, striking deviation from the normal in brain size will tend to be associated with mental abnormality. This assumption is not a mere theory, but is in strict conformity with everything that biology, evolution, embryology, and medical science generally have to teach us as to the relationship of "mind" to "brain matter." Such an assumption is in no way disturbed by the facts, to which we have repeatedly directed attention, that mental dullness, even to idiocy, may occur in either microcephalic or macrocephalic heads, as may also genius.

As the cubic capacity of brain of a normal living boy or girl, at the different ages of their educational career was quite unknown, we were compelled, at the very outset of our investigation, to undertake an enquiry of considerable magnitude, which had, as its first and immediate object, the determination of the amount of cubic capacity of brain which the average normal boy or girl should possess at every year of life. For this purpose we have examined some 10,000 children and university students, with control cases drawn from known abnormal sources.

Having determined the mean capacity of brain of the normal living child, it next became necessary to determine the range of variation from the mean, and to determine how far, if at all, extremes in this range were to be regarded as abnormal. For the former we have employed the standard deviation and other well-known statistical methods of mathematical science. For the latter we have made use of Sir Francis Galton's method of percentiles, and the standard deviation as a unit of possible abnormality. Table No. 1 illustrates our table of percentiles for 2,104 Victorian public school boys and Melbourne University students. Others will appear in the more extended monograph upon which we are now engaged.

Table 1.
Table of Percentiles of 2,104 Victorian Public School Boys and Melbourne University Students.

Range of Percentiles.	7th, 8th, 9th Yr of Life	10th Year of Life.	11th Year of Life.	12th Year of Life.	13th Year of Life.	14th Year of Life.	15th Year of Life.	16th Year of Life.	17th Year of Life.	18th Year of Life.	19th Year of Life.	20th to 30th Yr of Life
0	1160	1124	1194	1158	1166	1162	1135	1127	1225	1145	1182	1272
10	1206	1222	1239	1224	1263	1255	1265	1307	1320	1350	1381	1370
20	1227	1256	1285	1255	1293	1292	1308	1336	1356	1380	1403	1411
30	1257	1269	1279	1278	1312	1318	1330	1360	1386	1403	1427	1442
40	1264	1295	1293	1295	1323	1338	1352	1382	1401	1423	1448	1463
50	1282	1304	1315	1323	1338	1357	1377	1404	1415	1448	1466	1481
60	1297	1316	1333	1349	1362	1373	1398	1425	1434	1467	1483	1509
70	1333	1326	1354	1360	1382	1391	1426	1452	1459	1486	1495	1528
80	1344	1345	1378	1387	1417	1412	1460	1477	1483	1520	1520	1553
90	1380	1372	1399	1428	1447	1455	1487	1507	1522	1551	1551	1589
100	1480	1504	1489	1593	1539	1690	1608	1593	1655	1653	1637	1669

The mentally abnormal types will tend to be found below the 10 percentile and above the 90 percentile.

The 50 percentile indicates the median for each year.

In the extreme right-hand column of the table will be seen the results for university students in the third decade of life. The average amount of brain which

may be reasonably expected by individuals of this age and class is seen from the median—the 50 percentile—to be 1,481 c.cm. The university student, who occupies the lowest place, or the 0 percentile, has but 1,272 c.cm., that is, he has less brain than the eight-year-old normal boy, and is thus some twelve years retarded. To assert or pretend that these facts have no educational significance is the merest stupidity, which it would be folly to refute.

Proceeding upon our hypothesis that "striking deviation from the normal in brain size will tend to be associated with mental abnormality," we next proceeded to submit those cases which fell below the level of the 10 percentile, or above the 90 percentile, to a psychological examination, in which use was made of the Binet-Simon, Porteus and other approved and standardized tests, with the following results: Of the microcephalic group, 50% were found to be at distinctly subnormal mental levels, but only 5% were above average intelligence.

Of the macrocephalic group, on the other hand, 14% were of subnormal intelligence, and 25% above average intelligence. That one-half of the microcephalic heads are of subnormal intelligence is in accordance with the thesis on which we are working. That all are not so is simply due to the fact that head measurement cannot differentiate between the varying contents of the skull—fluid, neurone, or neuroglia. That a small percentage of the small-headed are distinctly above average intelligence, even to the acquisition of genius, is also in accordance with the known facts, since it is certain that the amount of grey cortical matter, especially of certain regions concerned in some particular phase of mental activity, may exist in unusual abundance; hence the occurrence of genius of the small-headed type, though it should be noted that such a form of genius is often limited to a single subject. That a larger percentage of the macrocephalic heads are above average intelligence is strictly in accordance with known neurological facts. That all are not so, is due to the disturbing influences of excess of cerebro-spinal fluid, or varying ratios of neurone and neuroglia; this, it is obvious, head measurement alone cannot discover. For these last reasons it is also to be expected that a certain percentage of the macrocephalic heads would be of subnormal intelligence.

From these results, certain facts of importance in the early recognition of feeble-mindedness and other forms of social inefficiency are clearly revealed. These are:—

(1) That head measurement alone is, and must always be, an uncertain guide as a measure of intellect or its lack.

(2) That, as mental development is entirely dependent on brain matter, striking deviation from the normal in brain size tends to be associated with mental abnormality.

(3) That when this deviation attains a certain sufficiently high degree, it must be revealed by head measurement and the calculation therefrom of brain size.

(4) That such cases of striking deviation are due, in many instances, to developmental failure of the outer, supra-granular, or "intellectual" layer of the cerebral cortex, and as this necessarily means a

greatly diminished number of myelinated neurones, there will be a smaller sized brain, which head measurement, even in its present imperfect stage, is capable of detecting. Hence, small-headedness will be of more diagnostic significance than large-headedness.

(5) That the authors' percentile tables of brain capacity are distinct aids to the diagnosis of mental inefficiency, and afford a more certain basis for the psychologist to work upon than has hitherto been the case, because, as stated, they afford some clue to the relative development of the supra-granular (educational) and infra-granular (instinctive) layers of the *cortex cerebri* of the individual.

It is this last fact which has given this work its value, and which entitles it to the serious consideration of educationalists and psychologists. Three illustrative examples, from our own experience, may be quoted:—

(1) The individual who occupies the zero position in the percentile table for the third decade of life has the following instructive clinical history. He was, as a boy, at a large public school, and performed his scholastic work perfectly satisfactorily until the age of puberty. Thereafter his educational work fell off, and he was subsequently expelled from the school for immoral offences. He managed to gain access to a university, from which he was rusticated in less than twelve months for improper conduct at his first examination. Enlistment followed, with expulsion from two successive camps for reasons similar to those which had necessitated his earlier expulsion from school.

The probable scientific explanation of this case is as follows:—

The earlier satisfactory scholastic work is chiefly, though not entirely, due to the earlier development of the infra-granular or "instinctive" layer of the cortex. The later phases of gross social inefficiency are explicable by lack of complete development of the controlling supra-granular cell layer of the cortex, which, in this instance, was of so gross a character as to enable it to be detected by head measurement, and which, with the onset of puberty, gave unrestricted rein to the instinctive calls of sex of the matured infra-granular layer. His brain capacity is only equal to that of a boy of about eight years—that is, he is twelve years retarded. The case is a striking illustration of the truth of Dr. Goddard's previously quoted remark that "the most dangerous group of the mental defectives are those who are in no way different from the intelligent man; and not only in outward appearance, but in conversation and bearing, often pass for normal."

In this instance the diagnosis of sociopathy is fully established by the brain capacity and the educational and social record.

(2) A group of youthful indeterminate criminals forms another striking instance of the value of the method we are now advocating—and the more so, because here we employed the method in its entirety. These criminals, 25 in number, of an average age of 19 years, are shown to possess an average brain capacity of 1,344 c.cm., that is, they are seven years retarded. Psychological examination gave them an average mental age of 10½ years, which thus agreed with the brain capacity results in a remarkable way.

There is thus complete agreement between the physical, psychological, and social diagnostic approaches, and there is again established the fact that, in these individuals, the social inefficiency is primarily due to lack of development of the controlling supra-granular layer of the *cortex cerebri*.

(3) The third case is of a different category, and shows the value of our method in another direction. A public school boy was found to have a brain capacity which placed him in the 30 percentile of his year. His educational record was bad, though the boy displayed no vicious instincts. Encouraged by the results of our examination, the head master determined to persevere with the lad and to keep him under close observation, with a view to discovering any latent potentialities which he might possess. It was found practically impossible to proceed on ordinary educational lines, but as the boy was found to have a gift for the detection of fabrics, he is to be sent into a woolsorter's office, where, it is probable, if he avoids bad companions, he will make good.

These are not isolated instances, but could be multiplied from the many authentic cases which have passed through our hands.

We shall now endeavour, as fairly as possible, to set forth the advantages and disadvantages of our method. Amongst the advantages are the following:

(1) The individual is measured against the "normal" standard of his fellows—a proceeding which eliminates the personal element of prejudice. The method is, therefore, an objective, and not a subjective, one, though the interpretation of the observed facts necessarily calls for considerable skill and accurate knowledge of an extensive kind.

(2) No case of mental deficiency can escape detection, as what one part of the method fails to discover, another will supply. For example, though psychological tests alone will undoubtedly determine the mental status of a large percentage of mental defectives, they cannot do so in the less marked cases without ancillary diagnostic methods. Of these, diametral head measurement is one of the best, as it affords a first approximation of possible gross mental abnormality, and thus gives useful information as to the probable relative states of development of the cortical layers of the brain.

(3) Quite apart from the detection of mental deficiency of various grades, our combination method of diagnosis is capable, in sufficiently skilful hands, of giving useful advice to the normal or highly mentally gifted, as to the choice of a career. This, naturally, it cannot do with the same accuracy as it can diagnose the social inefficient.

(4) The method can be shown to be of practical utility to criminologists and social reformers, as it grades the individual in terms of years, and thus gives some indication as to whether the individual can be trusted by society to control the "instinctive" activities of the infra-granular layer of the brain cortex. It is from those who cannot do so that the greatest dangers are threatened, and it is in precisely these cases that the brain capacity examination is most likely to be accurate, because the departure from the normal is sufficiently gross as to be capable of detection, even by the imperfect method of head measurement now available, and even then the diagnosis does

not rest on this alone, but must be confirmed by the other avenues of approach which we employ.

(5) The method makes no attempt to dictate as to what are the age limits of morosity or feeble-mindedness. It merely states that the retardation or advancement can be gauged in years, and leaves future research to determine what terminology shall be applied to the various grades of defect. Amongst the disadvantages of the method are some which are inseparable from the existing state of neurological knowledge, as, for example, the imperfect method of estimating head cubic capacity, the lack of knowledge as to the varying ratios of neurone and neuroglia, and of brain and cerebro-spinal fluid; there is again the very real danger that, because some parts of the method are easy of application, such as the brain capacity determination, the too enthusiastic amateur, or the school medical officer with little or no psychological knowledge, and an imperfect acquaintance with the Binet-Simon tests, may seize on some part of the complex method and run it to a premature and undeserved death. We cannot too strongly emphasize that our method is a combination method, and is not intended to be utilized in any other way.

This leads us to the gravest disadvantage of all, and that is, that, in Australia, at all events, there are neither a sufficient number of persons trained to apply this method, nor is there at the moment, any means of affording them the requisite training. As was remarked in *The Medical Journal of Australia* in its issue of June 22, 1918, "it is waste of time, energy, and money to give them"—that is, these or similar tests—to the untrained school teacher, or even to the medical practitioner who has only a superficial education in psychiatric methods." •

Whilst we think we may legitimately claim to have enhanced the accuracy of the diagnosis of mental and social inefficiency, and what is still more important, to have made that diagnosis possible in childhood, we do not pretend to have uttered the final word. We concur with Burt: "Knowledge here is in its infancy, and science but a few years old." As regards Australia, the same writer's words are, unfortunately, only too applicable, "those whose business is to care for the mind and build up character are subject to daily criticism, by the public or in the press, as though they were themselves amateurs. . . . The real need, therefore, is for research. Only through research can scientific knowledge take the place of unverified opinion; and only through scientific knowledge can practical efficiency be attained. Scientific research in education is thus needed, not only to enhance the practice and profession of teaching, but also in the near future to promote the welfare of the nation."

The children of to-day are the real wealth of the nation. The future of the country depends on their future. Is then that future to depend on the "unverified opinion" of "a superficial, amateur, bungling decade," or is it to be made the subject of the research for which the distinguished psychologist to the London County Council so eloquently pleads, and of which he has furnished such a conspicuous example?

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SOME POINTS ON THE TREATMENT OF BONE AND JOINT WOUNDS.¹

By Lennox G. Teece, M.B., Ch.M.,
Sydney.

The compound fractures of the femur were treated almost exclusively on the Thomas's bed knee splint, except that for those in the upper third of the thigh a Jones's abduction frame was used. This frame holds the lower fragment well abducted, and thus brings it into line with the upper fragment, which is held in that position by the action of the powerful group of abductor muscles. The principle is exactly the same as that of a Thomas's knee splint—extension is similarly applied; counter-extension is applied by means of a groin strap, which takes the place of the ring of the Thomas's splint. The sole difference is that the abduction frame secures abduction of the lower fragment, which the Thomas's splint cannot do. One word of warning is necessary in the use of this frame. The padded cushion on which the patient lies, and which is technically known as the saddle, must be made of basil leather and stuffed with lambs' wool. The use of American cloth, ordinary leather, or any other stuffing except lambs' wool will assuredly lead to bed sores. The saddle is shaped to fit the back, and has two prolongations distally, on which the but-

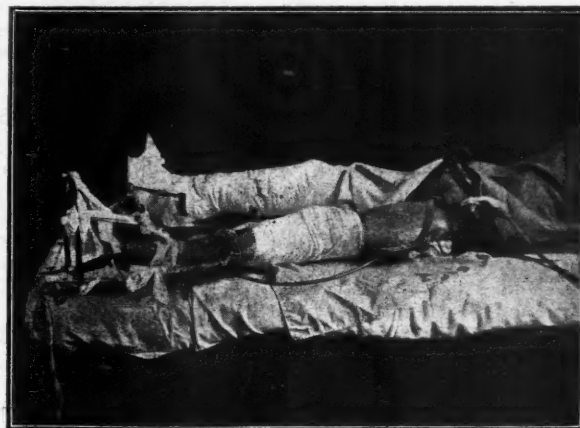


Figure I.
The Jones Abduction Frame in Use in Fracture of the Femur at the Junction of the Middle and Upper Thirds and of Tibia in Lower Third.

tocks rest. No difficulty is experienced in the use of the bed pan. I show you a picture with the patient in position on the frame. This man,

¹ Being portion of a Paper on Military Orthopaedic Surgery read to the Western Medical Association at Parkes, June 7, 1918.

Pte. N., was admitted a fortnight after being wounded, with compound fractures of both tibia and femur on the left side. In this case, two extensions had to be applied, one to the femur and the other to the leg, below the site of the tibial fracture, the former being adjusted and tightened first. There were 6.25 cm. (2½ inches) of shortening. Sepsis was virulent, and resulted in the death of much bone, which largely accounted for the ultimate shortening. Numerous large sequestra formed; one which was removed comprised in part the whole circumference of the shaft of the femur. The end result was 3.1 cm. (1¼ inches) shortening and perfect alignment.

The Thomas's bed knee splint was applied by the method advocated by Major Sinclair, and his glue extension was used. In its use it is important that the ring should fit accurately, so that counter pressure is obtained against the *tuber ischii*. Should the surgeon be unable to secure a splint with the ring small enough for his patient, an alternative method exists, which gives excellent results. The Thomas's splint may be used like a Hodgen's splint. The foot of the bed is raised 45 cm. (18 inches), and the bottom end of the splint is tied to the end of the bed, the end of it being raised on a small block about 25 cm. (6 inches) high, so that the leg and foot are clear of the mattress. Then the patient's body weight will act as a counter-extending force.

The deformity most difficult to overcome is one which is present in almost every case, and which, if uncorrected, leads to a most disabling deformity. I refer to the posterior displacement of the lower fragment, due partly to gravity and partly to the pull of the gastrocnemius muscle. There is only one way in which this can be satisfactorily overcome. It will not be overcome if the posterior support of the limb consists of a metal gutter splint or a zinc trough, such as one frequently seen used. The posterior support must consist of strips of flannel bandage, 10 cm. wide, placed in close apposition to one another under the limb. The strips are threaded round the inner bar, so that they are brought under the limb double. They are then clipped on to the outer bar by powerful paper clips with the requisite degree of tension. Failing paper clips, safety pins may be used. It is essential that the strip which passes under the site of fracture should be adjusted first. It must be examined daily, and tightened when necessary. In this way a continuously acting force is maintained, to overcome the posterior bowing at the site of fracture. It overcomes it with marvellous success in the course of a few days, and the normal antero-posterior bowing of the femur is restored. This is in direct accordance with the principles of Thomas, and is illustrative of the efficacy of a small force applied continuously. I need hardly say that it is a necessary concomitant of this that the extension should be efficient, for, should the fragments overlap at the site of fracture, it is useless to try thus to overcome the backward bowing. Furthermore, should the fracture be at or below the junction of the middle and lower thirds of the femur, the Thomas's splint should be bent so that the knee is flexed to 35°, thus relaxing the pull of the gastrocnemius. As regards extension, weight and pulley are not used. The two strips of extension are

merely tied to the bottom of the splint, after passing round the side bars, one under and the other over; the surgeon ties these as tight as he can, and examines and tightens them daily, thus gradually overcoming the shortening till the limb has regained its normal length. It is surprising at how late a period correction can be obtained. All these wounds are septic, and the callus is consequently soft and slow in solidifying. I had one man under my care 39 days after he was wounded, having sustained a fracture of the lower third of the femur. On admission, there were 5 cm. of shortening, with marked backward bowing; the wound was almost healed and the fracture clinically united, though the presence of tenderness gave proof that the callus was still soft and would possibly yield.

I carried out treatment on the lines indicated above, and had the satisfaction 36 days later of removing the splint, with the fracture firmly united, and the shortening reduced to under 2 cm.

I show you photographs of a femur fractured in the lower third; the first as the patient arrived from France, with his leg put up in a Thomas's splint, with the knee unbent and inadequate posterior support (see Figure II.). In this the posterior bowing is evident



Figure II.
Fracture of the Femur at the Junction of the Lower and Middle Thirds, showing posterior bowing, with a gutter splint as the posterior support of the limb and a straight Thomas's knee splint.

to the naked eye. The second photograph shows the fracture put up in the way I have described (see Figure III.). It shows well the flannel slings and the paper clips. A skiagram illustrated the correction, and, in fact, the over-correction, of the backward bowing.

I have laid great stress on this backward bowing, because, if union occurs in this position, a condition as of *genu recurvatum* is produced, and walking is extremely difficult. The foot must be maintained at right angles to the leg, lest shortening of the *tendo Achilles* occur. This is best done by strips of gauze glued to the dorsum and sole of the foot and tied to the top horizontal bar of a foot-piece, which is sprung on to the side bars of the splint, as illustrated.

There is one test of the correct putting up of a fracture on a Thomas's splint which should always

be tried. If it is satisfactorily done, the surgeon should be able to stand at the foot of the bed, raise the end of the splint in his hand, and wave it about freely from side to side and up and down without causing the patient the slightest discomfort. I know of no other splint that will answer this test, and none



Figure III.
Fracture of the Femur at the Junction of the Lower and Middle Thirds, showing the improved position by adopting the technique described in the text.

other is satisfactory. Though I speak of gun shot fractures, the principles governing the treatment of fracture of the femur in civil life are not one whit different; only in them the problem is a far easier one.

As regards wounds of the knee-joint, the early treatment in France followed four main lines:—

(1) Excision of the wound, irrigation of the joint, complete closure of the wound after the joint is filled with a 2% solution of formalin in glycerine, or perhaps the insertion of a small drain into the subcutaneous tissues.

(2) Primary excision of the joint, even in the presence of sepsis.

(3) Wide laying open of the joint by turning the *ligamentum patellæ* and patella upwards over the quadriceps and flexing the knee acutely, afterwards straightening the limb and replacing the patella when sepsis had subsided.

(4) Drainage of the joint by means of tubes passed through from side to side.

I had the opportunity of seeing the later stages and results of all these lines of treatment, and must unhesitatingly condemn primary excision. Apart from the fact that, in many cases, probably due to hurried working, such as is inevitable in advanced work in France, the actual carpentry was bad, so that many men were left with a bad *genu valgum* or *genu varum*, the operation often involves a needless sacrifice of bone, with consequent excessive shortening, and, at the best, the patient has a stiff knee, which is the worst that can happen with any of the other lines of treatment.

Primary excision and closure of the wound gave excellent results in many cases; but these were probably cases where sepsis was never marked. Many of these men regained almost a full range of movement in the knee-joint. Wide opening of the joint with through-and-through drainage often resulted in anky-

losis, bony or fibrous, but usually successfully combated the sepsis.

As regards the prognosis as to movement, from an investigation which Captain Bristow and I conducted into 50 cases of wounds of the knee-joint, we came to the conclusion that the result depended mainly as to whether there was a fracture through any part of the articular surface. In its absence the results were very good. In its presence the outlook as to movement was poor.

Ununited fractures were confined almost entirely to the humerus, radius and ulna. I never saw the femur or tibia fail to unite, although, in the course of 18 months, I met with about 100 cases of ununited fracture. I had one case of a fractured femur that had remained ununited for ten months. I put the limb in a long plaster spica, and three months later the bone was firmly united. One case of ununited tibia was admitted, in which non-union had lasted for a year and seven months. In the skiagram a gap was seen of 6.25 cm. between the upper and lower ends, with a loose fragment lying medially to the two ends of the shaft, but not in contact with them. There was a broad scar over the shin, firmly adherent to the bone. This was excised at a preliminary operation, the ultimate intention having been to do a bone graft, but the preliminary excision of scar stirred up a latent sepsis, and the wound broke down. When it healed the leg was immobilized in plaster, and the operation was postponed for six months. Before half this time had elapsed, union had occurred, the loose fragment uniting with each end of the shaft by an outgrowth of periosteal new bone formation.

Persistent non-union in the humerus, radius and ulna was treated by bone graft. Preliminary to this, broad scars which were adherent to bone or looked likely to break down, or which were so situated that they would lie over the graft, were excised and the bone graft applied some weeks later. Albee's electro-operative bone instruments were used. The motor circular saws, both single and twin, were found extremely useful for cutting the graft from the tibia and for preparing the bed. Very long and large grafts were used, and a deep bed prepared, extending well into the healthy shaft. The fractured ends were always found to be rounded and dense and their medullary cavities obliterated, and obviously possessed of no osteogenic capabilities. The grafts were fixed in place by kangaroo tendon, and the limb encased in plaster till union was fairly firm.

When considerable postural deformity existed, it was often found of advantage prior to the main operation forcibly to correct the alignment of the limb under an anæsthetic, and to hold it in the corrected position in plaster for about three weeks.

Reviews.

FIRST AID ON THE FIELD.

The experience of two French surgeons of the front line is crystallized in "Les Premières Heures du Blessé de Guerre," by Drs. P. Bertein and A. Nimier.¹ The recently published

¹ Les Premières Heures du Blessé de Guerre, du trou d'obus au poste de secours; par MM. les Médecins-major R. Bertein et A. Nimier; Préface du Médecin Inspecteur Général Jacob; 1918. Paris: Masson et Cie (Collection Horizon. Précis de Médecine de Chirurgie de Guerre); Demy 8vo., pp. 144, illustrated. Price, 4 francs.

man presents many new problems in modern warfare. We realize how entirely new they are by comparing this present volume with Makin's "Surgical Experiences of the South African War."

The stabilization of the front carries certain advantages, and at least one disadvantage, and that is that the front line is being so constantly battered by shells that all medical activities must be performed by stealth. International conventions can guarantee no protection, and the wounded man must in secret be carried to deeply buried shelters, so placed as to interfere with both the comfort of the wounded and the efficiency of the medical treatment.

The authors have no delusion as regards the value of the first field dressing, which, in somewhat similar manner to his British comrade-in-arms, the French *poilu* carries in the left-hand pocket of his tunic. With much truth, they point out that the best that can be hoped for is that this dressing has remained aseptic—an exceedingly doubtful point. At its worst, however, it is scarcely more harmful than the filthy clothes of the trench-fighter. Its greatest value will always lie in the psychical satisfaction it gives the wounded man. Another use not intended by its originators may be mentioned. On one occasion, when an absolute dearth of dressings existed near the fighting area, the first aid dressings of the uninjured men were commandeered for use by their less fortunate comrades.

The best form of stretcher for trench use is still an open question. Not infrequently the attempt to use the ordinary straight stretcher has ended in the wounded man being carried either above the heads of the bearers and exposed to fire, or else in the bearers' arms. When, in the latter case, the wounded man has had a fractured femur, his sufferings may be imagined. Such needless sufferings, as the authors very rightly point out, are one cause of the profound shock in which the wounded arrive at the first aid post.

The hammock stretcher of Morocco and the stretcher of Eybert, which are illustrated in this book, are a distinct advance on the old form. The patient lies curled up with his knees near his chin, a curious position, but one in which the sinuous curves of the trenches can be negotiated with some facility. The authors insist on the absolute need for security at the first aid post, since it is only under these circumstances that the wounded man can obtain the mental relaxation of knowing that he is perfectly safe, and this mental relaxation plays a prominent part in the relief of his shock.

The book is devoted to a consideration of the transport and treatment of the recently wounded, and to the organization and working of a regimental aid post. Although the French Army medical system differs in method and organization from our's, nevertheless the problems to be faced remain the same. It will therefore be especially useful to those medical men who are about to go on active service, and whose idea of their duties rests insecurely on the information to be derived from our service manual.

NEUROSES AND PSYCHOSES.

"Nervous and Mental Diseases," under the conjoint authorship of Patrick and Pollock,¹ is the fourth volume of the Practical Medical Series, which aims at placing before the reader any fresh information obtained about the various groups of diseases to which each volume is assigned. The whole series is practically a year book published primarily for the general practitioner, and it is arranged in several volumes for the benefit of the specialist, who can by this method purchase the section which interests him most.

As an investment the price is too high when compared with the price of a medical annual of one volume, covering practically the same ground as the whole of this series. Works of this nature must necessarily contain almost the same information, as they are composed mainly of selections from medical journals accessible to everybody.

As it is an American publication, American journals and American writers, whose names are not so familiar to us as are those of the United Kingdom, are quoted freely.

¹ The Practical Medicine Series, under the General Editorial Charge of Charles L. Mix, A.M., M.D., Volume X., Nervous and Mental Diseases, Edited by Hugh T. Patrick, M.D., and Lewis J. Pollock, M.D.; 1917 Series. Chicago: The Year Book Publishers; Melbourne: Stirling & Co.; Crown 8vo., pp. 323, illustrated. Price, 6s.

The book is divided into two sections. The first is devoted to diseases of the nervous system, and the second to psychiatry. The first division commences with a few pages on symptomatology, followed by a description of various manifestations of the neuroses. As would be expected, there are frequent allusions to conditions caused by the war. Some of these morbid conditions are due to actual nerve tissue destruction, and some are purely psychical. Among the latter is the much-discussed state called shell shock, with its many and varied paralyses, anaesthesias, aphonias, etc., which Buzzard would not hesitate to call hysteria, were it not on account of a certain degree of obliquity attached to the word.

In the few pages allotted to syphilitic diseases of the nervous system, the rival merits of mercurialized and salvarsanized serum for intrathecal injection are discussed. In this section we find that the injection of salvarsan into the lateral ventricle is advocated in the treatment of general paralysis "because the operation is so harmless." This is distinctly misleading to those who have no experience with this operation, which carries with it a big risk. The paragraphs on diseases of the spinal cord and the brain contain records of isolated cases of uncommon nerve diseases.

In the section dealing with psychiatry, the chief interest centres around the question whether the war has increased insanity or created any new type of mental disorder.

Apparently the war has acted as a stress, and those with predisposition have become insane when certain incidents dependent upon the war produced the breaking-point of the individual in question. The war has not created any special psychosis. Post-traumatic psychoses due to the violence and power of engines of destruction are extremely frequent.

Contrary to the experience of the year 1870, melancholia is more frequent than mania. The prognosis in the case of war insanity is stated to be favourable in 80%.

The publication is a useful reference book, but the information on any subject is meagre, and necessitates application to the original articles quoted.

RATIONAL THERAPEUTICS.

The latest addition to the Students' Aids Series is the volume upon "Aids to Rational Therapeutics," by Dr. R. W. Leftwich. This small book, containing 233 pages, exhibits many innovations. The author considers that the shortest way of teaching therapeutics is to place in the same group diseases which require the same treatment. In this way diseases which are of allied pathology fall into the same group. He has therefore divided diseases into forty groups upon this basis, and has added separately those diseases which could not be so classified. The treatment common to the whole group is supplemented by that which is special to each member of the series. There is thus an hyperemic group, a catarrhal group, a plastic effusion group, a serous effusion group, a purulent flow group, an abscess group, a necrosis group, and a hemorrhagic group, dealing with the inflammatory diseases of the larynx, trachea, bronchial tubes, hepatic and pancreatic ducts, the stomach and intestines, the urinary bladder, the pleural, peritoneal and pericardial membranes, the synovia, etc. The treatment consists of brief directions as to the care of the patient, the use of local remedies, and the administration of a medicine for which the prescription is given. The principles on which the medicaments are chosen, are not considered worthy of mention. The prescriptions are all written with the old apothecaries' measure. An appendix added for the instruction of the student in that important therapeutic agency, the effect of a manner inspiring the patient with confidence in the medical attendant, consists of a lengthy biography of the author, relating how he acquired his present considerable experience, and of some useful directions as to behaviour in the sick-room. In his autobiography the author laments his failure to acquire fame and reward for his discovery that vaccination should be performed aseptically. Another appendix deals with an amendment of the British Pharmacopoeia, whereby uniformity in the dosage of the various preparations might be attained.

¹ Aids to Rational Therapeutics, by R. W. Leftwich, M.D., C.M., M.R.C.S., Eng., Students' Aids Series, 1918. London: Baillière, Tindall & Cox; Folscap, pp. 241. Price, 3s. 6d. net; or in paper cover, 3s. net.

The Medical Journal of Australia.

SATURDAY, AUGUST 3, 1918.

In Memoriam.

On this, the last day of the fourth year of the war, we pay reverend homage to our brave dead.

William Robert Aspinall
Guy Brooke Bailey
Harold Knowles Bean
Thomas Charles Bennett
Francis Spencer Bond
Norman Walford Broughton
Joseph David Buchanan
Norman John Bullen
Clive Britten Burden
Sydney James Campbell
Gother Robert Carlisle Clarke
Anthony Hagarty Corley
James Davie
Edward Wilkinson Deane
Arthur Francis Deravin
John Ebenezer Donaldson
George Stephenson Elliott
James Fairburn Fairley
James Froude Flashman
Thomas James Frizell
Wade Shenton Garnett
Eric Louis Giblin
Benjamin Digby Gibson
Stuart Millard Graham
Harry Franklyn Green
John Neville Griffiths
Kendall Hammand
Edward Harkness
Charles Montagu Harris
Gilbert Aberdeen Harvey
William Weston Hearne
Ronald Lennox Henderson
Andrew Victor Honman
Godfrey Howitt
Melville Rule Hughes
Roger Forrest Hughes
Gladstone Montague Hunt
Arthur Cyril Albert Jekyll

Frederick Miller Johnson
Eric John Kerr
William Duncan Kirkland
Arthur Wellesley Homan Langley
Keith Maurice Levi
Reginald Blockley Lucas
John Fitzmaurice Guy Luther
Brian Hamilton Mack
John Gladstone Mackenzie
George Archibald Marshall
Gordon Clunes McKay Mathison
Francis Bramall Metcalfe
James Beverley Metcalfe
Albert Guy Miller
Percy Frederick Money
James Joachim Nicholas
John Lang Niven
Charles Oliver
Harold Frederick Hood Plant
Owen Herbert Peters
Brian Colden Antill Pockley
Cecil Robert Arthur Pye
Samuel Jabez Richards
Douglas Rodger
Arthur Cecil Hamel Rothera
Philip Beauchamp Sewell
Norman Craig Shierlaw
Roy Allen Sillar
Archibald Scot Skirving
Muir Paul Smith
Cedric Alwyn Stewart
Harold Oscar Teague
John Rowland Tillett
Arthur Verge
Edward Ronald Welch
Maldwyn Leslie Williams
Leonard Alexander Wright

AN IMPORTANT SOCIAL PROBLEM.

In the present issue Professor Berry and Mr. Porteus describe the means that are at the disposal of the expert for the detection of the varying grades of mental deficiency, and give some valuable information concerning the scientific basis of these means. From this contribution to the subject, and from all other sources of information, it is apparent that the soundness of the mentality of the nation in the future will depend on the manner in which the detection of mental inferiority is carried out and on the measures which are adopted to protect the community from the destructive and injurious effects of its abnormal constituents. The nature of the necessary discrimination renders it imperative that the work shall be entrusted exclusively to highly trained and competent persons. It is undoubted that the number of persons in the Commonwealth capable of carrying out this work is very limited, so limited that, for practical purposes, it may be assumed that they do not exist. The dearth of experts is so great that caution is needed before any scheme for their training is determined upon. Since the future of Australia depends on the elimination of the influence and actions of the mentally deficient, and since this elimination can only be effected by the instrumentality of trained examiners, it behoves us to set to work to train a large number of intelligent individuals to carry out this task throughout the length and breadth of the land. The first essential is to find teachers to train these examiners. It is easy to cast the onus on the Universities. This proposal has been put forward, but in it there is a risk that the training may be inexpert and that its object may be lost sight of. The matter is of immense national importance. Consequently, the Federal Government should be prepared to supply the financial means for the maintenance of a training school. Failing this, endeavours should be made to interest some of our large-hearted, public-spirited citizens of large means to rescue the future of the nation. We have no hesitation in recommending that the school should in the first instance be placed in the hands of Professor Berry and Mr. Porteus. A well-equipped and amply-endowed school in their hands would soon produce experts, who could carry their newly-acquired knowledge and experience to other parts of the Common-

wealth, where further training schools could be set up. The cost is a matter of small importance, since the economic gain that must follow is immeasurable.

A few weeks ago the Health Federation of New South Wales waited upon the Minister of Public Health of that State for the purpose of urging that psychiatry should be properly taught in the Medical School of the University, and that segregation of the feeble-minded should be carried into effect. The message which this Society carried to the Minister contained a reference to "the increase of feeble-mindedness, which is sure to be very much more marked, both as a direct and an indirect result of the war." It is quite evident from this quoted sentence that the members of the Society have misunderstood the problem altogether. The war may or may not lead to an increase of insanity. It would appear from the writings of psychiatrists that, while war experience is a determining factor in the psychopathic in the occurrence of an attack of insanity, it is unlikely to give rise to more insanity than existed before. How war could, directly or indirectly, increase mental retardation we fail to understand. That the Minister was even more confused in his ideas of the nature of mental deficiency is revealed by the reply which he is reported in the daily press to have given. "He agreed that it was far better to get the patients in a curable stage than to make them a permanent charge on the State." "The Government just now was encouraging a movement for the benefit of the babies, and this might have some effect upon the problem of feeble-minded children." "They were already looking after the children medically in the schools, with good results." The congregation of infants at clinics, which are largely in the hands of enthusiastic amateurs, without the guidance of an expert who has devoted a lifetime to the study of the physiology of infant life, and the examination of school children at a rapid pace for defects of vision by medical inspectors, who have not specialized in ophthalmology, and for defects of hearing or in the fauces, have no bearing on the problem of the mentally defective. Far more important than the detection of physical defects in children, and we are fully seized with the value of this work when skilfully carried out, is the detection of mental defects. To be of real service to the nation, this

work must be carried out systematically, and every child must be subjected to a searching and measured examination. And when the examination reveals a retardation of the higher mental faculties, there must be adequate machinery provided by the legislature to render the individual incapable of inflicting harm on himself or his compatriots and of reproducing his kind.

SENESCENCE AND TUMOUR FORMATION.

Of all the problems in pathology, the one that has proved the most difficult of approach and the most resistant to solution is that concerning the nature of malignant tumours. Until the causative processes which lead to hyperplasia and infiltration of cells beyond the basement membrane are understood, the prospects of combating this scourge of animal life may be regarded as non-existent. There are still some who regard cancer as an infective process. The vain attempts on the part of Doyen and others to ascribe cancer to the invasion of bacteria were never sufficiently ingenious to attract serious attention. Butlin held a more plausible view, in assuming that the cells of the growth, by virtue of their altered physiology, became endowed with the properties of parasites, and acted as detached unicellular organisms within their host. This theory did not lead much farther, and failed to render the process more comprehensible. The other group of pathologists who have approached this subject, have attacked the problem from the point of view of cellular pathology, and have sought to determine a histological reason for the altered behaviour of the cells. Freund and his school have taken it a stage further, and have introduced a chemical aspect of the cancer question. Many years ago Farmer and Moore endeavoured to show that the mitosis of cancer cells differed from that of normal cells and built up a theory on the basis of this alleged difference in structure. Ribbert, Thiersch and Adami, among many others, have pointed out that the cancer cell represents a reversion in type to its simpler ancestor. Some light was thrown on this extremely hazy picture by von Hansemann, who demonstrated a process, termed anaplasia, in which the cell specificity became increasingly diminished, until races of cells arose in which the reproductive power was permanently dominant. This view was put forward in 1893, but in 1906 we find that the same observer exercised the utmost caution in enunciating a significance to this theory of reversion.

A highly ingenious theory of the processes of tumour formation has been gradually evolved by Dr. E. W. Goodpasture, of the Harvard Medical School, in Boston.¹ This intrepid student has avoided the usual pitfalls by starting his researches with a single observed fact and collecting as many other facts as he could. He noted that malignant growths usually attack people and animals in advancing age. He therefore set himself the task of studying the changes of senescence in dogs, and in the course of this study

he came across some very interesting phenomena. Fifty dogs were obtained for the purpose. The selection was made solely on the ground of senile changes. The organs of each dog were carefully examined, both macroscopically and microscopically, immediately after death. Of the fifty dogs, all but three were found to have some form of tumour. In the majority of the organs examined there were several tumours. No less than thirteen malignant tumours were discovered. The histological examination of these organs revealed changes of a loss of specificity of the organ cells and a tendency to reproduction. The testes showed these changes most distinctly. In all the organs evidence was met with of injury impairing the vitality and functional activity of the cells. The senile injury led in some cases to the death of the cell. In others there was marked atrophy and disintegration. The atrophic cells lacked secretion granules. In the testes tubules were found in which active spermatogenesis was no longer present. Dr. Goodpasture found that, while the injury in many cases merely led to the degeneration and ultimate death of cells, in other instances it produced a loss of specificity and an enhancement of the power to divide. Mitosis in many of these de-differentiated cells was well marked. The cytoplasm was considerably increased in amount. The de-differentiated cells, however, were peculiar in one respect. While they showed distinct differences from normal cells, they had but little resemblance to embryonic cells. In many cases, as, for example, in the thyroid, it was extremely difficult to determine the origin of cells of a low cuboidal or flat type, although he was forced to the conclusion that they had sprung from the epithelium of the acini of the gland. The changes are described in considerable detail in the original article, to which we must refer the reader.

From the evidence collected, Dr. Goodpasture finds that the highly specialized cell of the organism has a limited life. Unlike the single cell of the unicellular organism, which, in its primitive form, grows, matures, nourishes itself and divides, these differentiated cells tend to become exhausted and to die after a period of functional activity. A cutting off of the nutrition in some cases may lead to the de-differentiation of the cell. Starving cells may utilize their structural substances as a source of energy. When this occurs, the physiological specificity is lost and the cell retains only the power of growing, nourishing itself and of dividing. As these changes advance, the power of multiplication appears as the chief characteristic of the cell, which is thus contrasted with the differentiated cell, which normally has but a limited power of reproduction. The simplification of structure then precedes the process of re-differentiation or metaplasia. In this way benign and malignant tumours arise. He attributes the senescent changes to the accumulation in the protoplasm of more or less stable structural substances. He has demonstrated crystalline deposits in the cells. Many cells die as a direct result of this poisoning, while others lose their specificity, and, in so doing, recover to a greater or lesser degree their vitality and youth. In some of these de-differentiated cells there may be an attempt at regeneration, with the acquisition of new specialized function. When the functional power is partially retained, the cells do not take on exuberant overgrowth,

¹ The Journal of Medical Research, May, 1918.

and remain limited as benign tumours. When the capacity of the cell to resume special function and structure is entirely destroyed, the formative power remains dominant and the continued growth of these cells results in the production of malignant tumours.

BENZYL ALCOHOL AS A LOCAL ANÆSTHETIC.

It has long been noted by those who have carried out research, that an investigation rarely progresses along the lines intended in its beginning. As knowledge accumulates, interest is attracted to problems which were unthought of when the study was commenced. The relation between the chemical structure of the alkaloids of opium and their action upon structures made up of plain muscle-cells has been engaging the attention of D. I. Macht for some months in the Pharmacological Laboratory of Johns Hopkins University. Those alkaloids containing a pyridine-phenanthrene grouping, of which morphine is the principal example, tend to stimulate the contractions and heighten the tonus of the muscular fibres, while the alkaloids belonging to the benzyl-isoquinoline class, of which papaverine is the chief representative, exhibit an inhibitory effect upon the muscular contraction and diminish or relax the tonus of the fibres. This inhibitory action has been found to be due to the benzylic radicle in the molecule. This observation has led further to the discovery of the unsuspected therapeutic properties of the benzyl esters as agents for relaxing muscular spasm in organs containing unstriated muscle. The well-known organic compounds of simple structure, benzyl-benzoate and benzyl-acetate, have been found most useful when used in clinical practice. They possess no toxic or narcotic qualities, while endowed with a specific action on smooth muscle. In the animal organism they undergo conversion into hippuric acid.

While Macht was examining the simple benzyl compounds in a systematic manner, with the object of finding a suitable substance for use as an antispasmodic, he studied benzyl alcohol. Since the esters are changed into the alcohol during their transformation into hippuric acid, it would appear desirable to use this substance rather than the esters, if it possessed similar action on plain muscle. When tasting a minute quantity of the benzyl alcohol, Macht noticed that his tongue was rendered completely anæsthetic.¹ He perceived at first slight irritation, followed by a sensation of numbness, cold and hardness. These feelings are similar to those induced in the mouth by cocaine. In this unexpected manner has been made the discovery of what promises to be a useful local anæsthetic. The proffered information has been confirmed and extended by systematic study. An investigation has been carried out in the laboratory upon the anæsthetic properties of the substance and upon its action on the circulatory, respiratory and nervous systems, so aptly termed by Bichat the "tripod of life." The anæsthetic has been also employed in a number of surgical operations, to demonstrate its fitness for clinical work. The effect of benzyl alcohol on the sensory nerve endings can be readily observed in man by painting the mucous

membrane of the lips, tongue or gums with 1% aqueous solution. The anæsthesia of the tongue produced by such a solution is perceptible as late as half-an-hour after the application. Pure phenylmethylol can be applied to the lips or gums without injury. There is initial tingling, followed by loss of sensation for several hours. The immersion of the foot of a frog for a minute in 1% aqueous solution suffices to induce sufficient anæsthesia to abolish reflex response to excitation by acids. Instillation of a similar solution into the conjunctival sac of a rabbit or dog brings about insensibility of the cornea in two minutes. The cornea can be picked up with forceps or probed with a sharp point without any reflex movements of the lids. Slight irritation of the eye is noticed with such a solution, but this is abolished by the addition of small amounts of adrenaline. The conduction along sensory nerves is readily blocked by applying to them an aqueous solution of the substance (1% to 3%), while a longer application is needed to produce paralysis of motor nerve fibres.

The effect of therapeutic doses and of even much larger doses of benzyl alcohol is manifested almost exclusively upon the blood-vessels. Such large amounts as 5 c.cm. to 10 c.cm. 1% solution of phenylmethylol in physiological saline fluid per kilo. body-weight cause some fall of pressure, due to peripheral vaso-dilatation. With larger doses a narcotic action is produced on the central nervous system, with respiratory paralysis and poisoning of the cardiac muscle. Dogs require a dose of 2 c.cm. of pure benzyl alcohol per kilo. body-weight to kill them. The lethal dose for cats is about half this amount. Rabbits and guinea-pigs are as susceptible as cats to phenylmethylol. In the animal organism benzyl alcohol is converted into hippuric acid and excreted through the kidneys. The pure substance is antiseptic, and produces necrosis upon subcutaneous injection. Aqueous solutions do not cause sloughing or local irritation.

Benzyl alcohol is a limpid liquid, with a faint aromatic odour. It occurs free in oil of jasmine and as an ester in styrax, balsam of Peru and balsam of tolu. It is easily manufactured synthetically. It is soluble in water to the extent of 4%, and it boils at 204° C.. Its solutions can, therefore, be sterilized by boiling them. The low cost of the drug favours its widespread use. This is a matter of importance at the present time, when cocaine is sold in Australia at the price of sixpence a grain. The substance is quite stable, and possesses satisfactory physical qualities for an anæsthetic for general use. This new anæsthetic has been tested in the Surgical Clinic of Professor Wm. Halstead and elsewhere. A report of fifty cases, dealing with the incision of abscesses, the excision of toe-nails, the extraction of a bullet from the hand, the excision of hemorrhoids, the incision of a rectal fistula, the removal of cysts and tumours and the performance of an extensive plastic operation, has demonstrated the efficiency of 1% aqueous solution as an anæsthetic. The healing of the wounds has been neither retarded nor interfered with by the benzyl alcohol. The substance appears to be valuable, since it is much less toxic than cocaine, since it undergoes metabolism, so that it is excreted in an innocuous form, and since it can be sterilized by heat without decomposition.

¹ Journ. Pharm. and Exper. Therapeutics, Vol. XI, p. 263, April, 1918.

QUININE IN MALARIA.

Laveran pointed out in 1907 that a single dose of one gramme of the hydrochlorate of quinine produces a greater concentration of the drug in the blood at a given moment, and consequently damages the hæmatozoa more profoundly than four daily doses of 0.25 gramme. This proposition is so self-evident that it would not be worth while repeating after eleven years, were it not for the fact that clinicians and investigators apparently still flounder in the dark after a suitable dose. It can be demonstrated in the test-tube that the plasmodium of malaria (benign tertian parasites) is killed when immersed for a relatively brief period in a solution of 1 in 5,000 of quinine. The oral administration of one of the salts of quinine in doses of less than a half of a gramme may kill some of the parasites in the blood, and may cause their disappearance from the peripheral blood, even if the concentration is insufficient to destroy them. There is no evidence in support of the contention of D. Thomson that relatively small quantities of quinine may half kill the parasites. A concentration weaker than that necessary to kill them, may inhibit their further development in the fluid, but cannot impair their vitality when transferred to a pabulum suitable for further growth. The treatment of malaria by quinine, therefore, resolves itself primarily into the administration of a dose which will provide at least 0.6 gramme in the blood at a given moment. It has been proved by A. D. McLean that 0.9 gramme of a quinine salt dissolved in 15 c.cm. of sterile distilled water is tolerated without untoward symptoms when injected directly into the blood stream. A single injection of this magnitude must bring about a destruction of all the parasites in the blood at the time. The only parasites that escape are those which are hiding in the spleen or elsewhere outside the circulating blood. Even in these hiding places many of the parasites may be reached and killed.

Drs. J. W. W. Stephens, W. Yorke, B. Blacklock, J. W. S. Macfie, C. F. Cooper and H. F. Carter have undertaken, at the request of the War Office, an enquiry into the methods of treatment of malaria, and have recently published their findings in regard to the value of the continuous and the interrupted administration of quinine in simple tertian fever.¹ They attacked the problem by criticizing the findings of other observers, and then by regarding their own observations from the point of view of palliative results, and from that of cure. Some patients were given 1.2 grammes daily for at least eight weeks; others were given 1.8 grammes daily for a similar period, while a third class of patients received 2.5 grammes daily. Reference is made in the article to the War Office Instructions, in which the daily administration of 1.8 grammes is prescribed in three doses of 0.6 each. The Liverpool investigators do not hesitate to denounce other observers for inexact records, but are guilty of omitting all mention of the size of the single doses given. It is obvious that the effect on the parasites in the peripheral blood must be exactly the same if two, three or four doses of 0.6 gramme of quinine are given at intervals sufficiently

long to admit of the passage of the drug out of the circulating blood. They applied the clinical test of the appearance of febrile relapses and distinguished between the attacks of fever associated with discoverable parasites in the peripheral blood, and those which took place when their search did not reveal any parasites. The fallacy of this test is obvious, since parasites may be present in the blood without being discovered. A second test consisted in the comparison of the frequency of febrile attacks during the 60 days following the completion of the treatment. It appears that the average weekly percentage of febrile attacks per case was 17.3, after 1.8 grammes and 10 after 2.5 grammes of quinine. Similarly they found that when quinine was given on two consecutive days in each week, and continued for at least eight weeks, the percentage of febrile attacks per case was greatest after 0.9 gramme, less great after 1.8 grammes, less still after 0.6 gramme and smallest after 2.5 grammes. The explanation of the anomalous result after 0.6 gramme daily for two days per week need not detain us at present. Having come to the conclusion that the best results were obtained when 2.5 grammes were given on two consecutive days in each week, they passed on to a comparison between the continuous and the interrupted methods of treatment. They found that the percentage of relapses was considerably smaller after interrupted than after continuous treatment, when the same daily quantum of quinine was taken. Thus they obtained better results by conserving their supply of quinine, provided that the amount given on each of the two days was 2.5 grammes. Moreover they found that the interrupted method did not give rise to any intolerance, as the continuous method with large quantities did. It is difficult to find a complete and satisfactory explanation for this observation. It is quite possible that the toxic effect produced by continuous full doses of quinine may impair to some extent the powers of resistance of the organism. Since the maximum amount of quinine in the blood at any one moment must be the same in both cases, this effect on the organism may be the determining factor in favour of the less frequent exhibition of the poison. The results of the observations of the Liverpool investigators provide strong presumptive evidence in support of the contention that the ideal method of treating malaria would be by the intravenous injection of a large dose in concentrated solution, repeated once or twice at weekly intervals.

An announcement is published in the *New South Wales Government Gazette* of July 26, 1918, to the effect that an area of land of over twelve acres at Lidcombe, in New South Wales, has been dedicated for the purpose of a crematorium, under the trust of Dr. R. T. Paton, the Honourable Mildred Creed, M.L.C., and Dr. Joseph Foreman.

Information has recently been received to the effect that Dr. James Herbert Ivey-Ingham, of Dimboola, Victoria, has been missing since July 5, 1918. On July 1 he left Dimboola to stay with some relatives at St. Kilda, and five days later he left the house at St. Kilda, apparently without any intention of absenting himself for long. He did not return. He had been working hard at his practice, and was said to be depressed at the time of seeking a change of scene and air.

¹ *Annals of Tropical Medicine and Parasitology*, May 11, 1918.

Abstracts from Current Medical Literature.

THERAPEUTICS.

(34) Standardization of Pituitary Extract.

R. A. Shaeth describes a new method for determining the biological activity of pituitary extract and other substances eliciting contractions in plain muscle-cells (*Journ. Pharm. and Exper. Therapeutics*, April, 1918). At present the strength of such drugs is ascertained by their action upon strips of the uterus of the virgin guinea-pig or upon the blood pressure of dogs. These methods of standardizing the drugs are complicated by great variations in the test materials. Strips of uterus show great changes in sensibility. The blood pressure of dogs may be readily increased in some animals, or may only change to a small extent in others. The author uses the melanophores of *Fundulus heteroclitus*, a common minnow on the Atlantic Coast of America. The melanophores are situated on the scales of the fish in the skin. Each scale consists of a bony plate, a thin dermal layer containing the superficial melanophores and a thin sheet of colourless epidermis. The melanophores cover about half the surface of each scale. The exposed bony portion serves as a convenient handle for transferring scales from one solution to another. The scales are used in the following manner: A thermostat is prepared to maintain a temperature of 22° C., and dishes are used to hold the different solutions. About fifty scales are removed simultaneously with a scalpel from a fish taken alive from the laboratory aquarium, and immersed in decinormal sodium chloride solution. In fifteen or twenty minutes the melanophores are seen with a lens to be fully expanded. Groups of six adjacent scales are transferred to a standard solution of pure potassium chloride, which serves as a uniform control. In the course of thirty or sixty seconds the melanophores begin to contract. The scales are watched, and pairs of scales are selected which show complete contraction in the same time. The scales are placed in pairs in decinormal sodium chloride solution for expansion of the melanophores. The paired scales are returned, one to standard potassium chloride and the other to a solution with more or less potassium chloride. In this way the sensibility of the preparation has been ascertained. In estimating the strength of pituitary extract, the approximate value is found by immersing adjacent scales in the gradually diluted pituitary extract until the time of contraction is similar to that of the scale in the standard solution. Matched scales are then used, to determine the strength more accurately. Some difficulties are experienced in standardizing the "pituitrin" of Parke, Davis & Co., since the solution is saturated with chlorotone as a preservative.

The author suggests that the extracts be made up without preservative for standardization. For commercial practice, the author suggests that the strength of extracts should be such that, when diluted with an equal volume of saline solution, they should contract the chromatophores of a group of scales of *Fundulus heteroclitus* in the same time as a solution of potassium chloride containing thirtieth normal potassium chloride, fifth normal sodium chloride. The minnows can be obtained in great abundance, and keep for weeks in tap-water. The method is inexpensive and simple. The end point of contraction of the melanophores can be easily determined with the naked eye.

(35) Action of Lactic Acid on Respiration.

S. J. Cohen has examined the effect of lactic and other organic acids upon the respiratory centre in the medulla oblongata of dogs (*Journ. Pharm. and Exper. Therapeutics*, April, 1918). Attempts have been made to ascertain whether other organic acids have the same stimulating effect on the rate and depth of breathing and how this increased respiration is brought about. Dogs have been anesthetized with ether. A tracheal canula has been inserted and records taken of the blood pressure and respiratory movements. The intravenous injection of lactic acid in doses of 0.5 c.c. of normal acid per kilogram of body weight produces marked increase in respiratory rhythm, both in rate and in amplitude. A similar augmentation of ventilation of the lungs can be elicited with any mineral and organic acid. This hyperpnea may be due to one or all of three factors. The acid may liberate carbon dioxide from the carbonates in the blood, and this carbon dioxide may excite the respiratory centre. The acid may excite the respiratory centre directly, or it may increase the sensibility of the centre to carbon dioxide. The author has injected one cubic centimetre of normal lactic acid into the fourth ventricle through the foramen magnum. The increased ventilation of the lung follows in about six seconds, and is accompanied by a heightened blood-pressure and pronounced slowing of the heart-rate. These results are noteworthy, since intravenous injection of acids lowers the blood-pressure. The increased blood-pressure and slow pulse are due to stimulation of the medullary vasomotor and cardio-inhibitory centres. It would appear probable that the respiratory alteration is due to a simultaneous excitation of the medullary respiratory centre. Acids in sufficient concentration can thus stimulate the medullary centres directly. Another experiment has been performed to demonstrate that acids increase the sensitiveness of the centre. In an anesthetized dog the sciatic nerve is exposed and divided. A weak tetanizing electric current is applied to the sciatic nerve, and the strength ascertained, which will just increase the rhythm of respiration. Lactic acid is injected in-

travenously. Three minutes after the acid response has ceased the sciatic nerve is again excited with the same strength of current. A vigorous respiratory response follows. This result may be obtained with lessening force for some minutes. In about 15 minutes the normal response appears.

(36) Solvents for Oil of Mustard.

T. Solmann (*Journ. Pharm. and Exper. Therapeutics*, April, 1918) has tested the irritant action of oil of mustard dissolved in various solvents or suspended in different fluids. He has applied 1% solutions of oil of mustard to the inner surface of the fore-arm. A small pledget of cotton wool is soaked with the solution and placed on the skin for five minutes. The degree of hyperæmia is observed on removing the irritant and fifteen and sixty minutes later. Judged in this way, oil of mustard, dissolved in olive oil or turpentine, causes no hyperæmia, oil of mustard, dissolved in ether or absolute alcohol, produces very little hyperæmia, oil of mustard, dissolved in 95% alcohol, produces distinct hyperæmia, oil of mustard, mixed with 50% alcohol, gives rise to intense, enduring hyperæmia, and oil of mustard, mixed with syrup or muclage of acacia, occasions most intense and persistent hyperæmia. It would appear that emollient and demulcent qualities do not antagonize the irritant action. Viscid olive oil and turpentine prevent hyperæmia. Viscid muclage and mobile 50% alcohol favour hyperæmia. The greatest irritation is observed with the aqueous sugar and gum solutions. Attention is drawn to the fact that such good solvents for oil of mustard as olive oil, turpentine, ether and alcohol hinder its penetration to the skin.

(37) Composition of Oil of Chenopodium.

M. C. Hall and H. C. Hamilton have investigated the composition of oil of chenopodium, and have made some observations as to the anthelmintic value of some of its components (*Journ. Pharm. and Exper. Therapeutics*, April, 1918). Oil of chenopodium is a potent anthelmintic, but possesses properties which make it, at times, an irritant to the alimentary tract of the patient. It may also occasionally exert toxic effects on the excretory, nervous and circulatory systems after its absorption. On distillation, oil of chenopodium has no fixed boiling-point, being composed of a mixture of constituents of unknown character. At low pressures the oil distills steadily, leaving a residue of 5% of resinous and gummy substances. About three-fourths of the oil distill over below 125° C. at 30 mm. Hg. pressure. This fraction appears to be less irritant and more powerfully anthelmintic. The remaining portion is more active as a gastro-enteric irritant, though still anthelmintic. The authors suggest that oil of chenopodium should be refined before use, to diminish its toxic properties. The authors failed to isolate ascaridol, which has been stated to be a portion of the oil with a con-

stant boiling-point. As this body would separate during the later stages of distillation, the authors do not regard it as the anthelmintic constituent.

UROLOGY.

(38) The Surgery of the Prostatic Urethra.

Granville McGowan (*North-West Medicine*, June, 1918) gives a general account of the diagnosis and treatment of pathological conditions met with in the prostatic urethra and at the neck of the bladder. He urges that general practitioners and general surgeons have made themselves too little acquainted with these pathological conditions, and have not studied the anatomy of the parts with sufficient care. Moreover, he holds the opinion that the treatment of these conditions necessitates constant practice with special instruments. In the anterior and lateral walls of the prostatic portion of the urethra there are glandular orifices and ducts from which adenomata and fibromata occasionally spring. In the centre of the floor of the prostatic urethra there is a fibro-muscular ridge, known as *verumontanum* or *colliculus seminalis*. This organ is 12 to 14 mm. in length, 1 mm. broad, and 1 to 2 mm. in height. It is spindle-shaped, and is more freely supplied with nerves of special sensation than any other portion of the body. The utricle opens through its centre, and the openings of the ejaculatory ducts are sometimes placed within it, on each side, and sometimes in front of it. The mucous membrane of the prostatic urethra may show oedematous, congested or ulcerative changes; it may become thickened, deformed and contracted, strictures and bands may arise; flat or acuminated papillomata may grow; the sub-mucous glands may become acutely inflamed and retention cysts or abscesses form or may become chronically inflamed, and eventually lead to the development of adenomata. When the glands of Albarani are involved, the vesical meatus may be obstructed, and one, or even both, of the ejaculatory ducts may be obliterated. He mentions a number of other pathological conditions, including the varicosity of veins, which are met with in this region. He claims that patients seeking relief of symptoms due to these changes in the posterior portion of the urethra, are frequently subjected to treatment by the passage of steel sounds and by irrigation of the bladder. Naturally, no relief is obtained, because the condition is not diagnosed. The first step in the diagnosis of these lesions is a careful inspection. The instruments used in the diagnosis have gradually been perfected since the cysto-urethroscope was invented by Hans Goldschmidt. The author prefers a Gerringer diagnostic urethroscope, which is also an irrigating instrument. By its means the entire contour of the prostatic urethra, including the vesical neck, may be brought into the field of vision. Another set of instruments comprise the urethroscopes designed for use with air as a distending agent.

Gordon's instrument is particularly adapted for the anterior portion of the urethra, while Marks's instrument is very useful where long, straight tubes are required for minor operations on the prostatic urethra. In the third place, he extols the excellence of his own modification of Luys's cysto-urethroscope. He claims that straight instruments have a considerable advantage over curved ones, notwithstanding the fact that it is a little more difficult to acquire the knack of using them. He points out that the posterior portion of the urethra has an almost perpendicular direction when the individual is standing, and contains three curves. As it leaves the bladder it has a concavity toward the rectum, and then a convexity toward the *verumontanum*, and, lastly, it extends in a long, flowing "S" from the *verumontanum* into the membranous urethra as a concavity from the posterior wall. To examine these parts properly, the patient lies on his back, with his feet supported in stirrups, or he may be placed in the Trendelenburg position. He is very emphatic that no time should be wasted in an attempt to pass a relatively small instrument through a narrow meatus. If necessary, meatotomy should be performed, and the meatus dilated for 14 to 16 days with the sound up to No. 30 French. In patients who have not been subjected to manipulations of this kind, a small dose of morphine and scopolamine should be injected, and ten minutes before the examination the bladder should be emptied and 5 to 10 c.cm. of a 1% solution of stovaine, alypin or novocaine introduced. Very sensitive people may require a little cocaine in addition. Care should be taken that the fluid is applied to the whole of the urethra, as well as to the bladder. After a suitable tube has been selected, it is passed in a direction almost perpendicular to the plane of the body, until it reaches the lower part of the bulb. The tip of the tube is found to be in contact with the outer layer of the triangular ligament. The external sphincter immediately contracts. The distal end of the tube is kept stationary, and the whole tube gently and steadily depressed, until it lies almost parallel to the plane of the body. A little firm pressure against the external sphincter will cause it to relax, and the tube will slide into the membranous portion. As it is advanced, the end of the tube is still further depressed, until the mouth is directly in front of the *verumontanum*. The patient must be cautioned at this stage not to move, cough or strain, as any unexpected manipulation may bruise or lacerate the tissues. The *colliculus* should be recognized by its characteristic shape, and the utricle and the minute openings of the ejaculatory ducts should be looked for. After these structures have been identified, the instrument is depressed at its outer end, and the tube pressed gently onward. The *verumontanum* will then be seen to roll backwards beneath it. Slight hemorrhages may be met with, in spite of considerable skill in passing the instrument. The author deals with this bleeding with the aid of small swabs

attached to long, wooden handles. When the parts have been thoroughly inspected and the lesions diagnosed, intra-urethral treatment may be carried out. The means employed include the application of cautery points, which should be made of heavy irido-platinum, in loops, or shaped as knives or points, scraping with minute curettes, cauterization with silver nitrate beads, chromic acid or other crystalline caustics, the employment of Young's punch, and the use of high frequency currents, etc. McGowan distinguishes between the application by contact, in which case electro-coagulation is effected, and application by a spark liberated from a distance. The latter is usually termed fulguration. High frequency current may be used in a water medium. The spark becomes cooled, and the chief agent is what he terms "the mechanical disruptive force." He finds this very useful for the rapid dissolution of benign growths of the bladder. In the last place, he deals with the means adopted when the lesions cannot be treated through the urethroscope. He states that there is but one way to open a perineum for the purpose of conservative surgery on the posterior urethra. This is by Proust's method.

(39) Polycystic Kidneys.

Charles E. Barnett has given the subject of the pathology and pathogenesis of polycystic kidney very careful study for some time, and has especially enquired into the question whether it is ever really unilateral (*Urol. and Cutan. Rev.*, April, 1915). The pathologists have placed at his disposal portions of two so-called normal kidneys from cases of alleged unilateral polycystic kidney. In one case a single cyst, associated with other pathological changes, was found, while in the other the changes in the second organ were very similar to those in the cystic organ. He obtained records of nine cases, in persons who were supposed to be suffering from unilateral polycystic kidney. In five of these polycystic changes developed in the second kidney. He brings evidence to bear to support the contention that polycystic kidneys are congenital and hereditary. He is able to prove that this disease begins during fetal life. The condition may be acquired during adult life. It is usually met with in the bilateral form. He maintains that a large majority of the patients who are dealt with by operation are lost sight of, so that it is impossible to determine the condition of the other kidney. He has reason to believe that those cases which may start as unilateral cases, terminate as bilateral cases. If there is sufficient renal tissue in the affected kidney, puncture should be carried out, but when the kidney has completely lost its function nephrectomy should be performed. The constant destruction which is going on as a result of polycystic disease cannot be arrested, but further changes due to acidosis, faulty diet, violent exercise and the like are quite amenable to treatment.

British Medical Association News.

MEDICO-POLITICAL.

At the meeting of the Western Australian Branch held on June 19, 1918, a letter was read from the Honorary Secretary of the Federal Committee relative to the proposal to establish a relief fund for the dependants of members who had been disabled or killed on active service, and for the disabled members themselves. The letter had been referred by the Council to the meeting.

It was proposed by Dr. D. P. Clement and seconded by Dr. R. C. Merryweather. "That the Western Australian Branch concur with any scheme that had the approval of the Federal Committee and of the other Branches of the British Medical Association." The suggestion was adopted.

A further letter from the Honorary Secretary of the Federal Committee, dealing with the means to be adopted for the protection of the practices of members absent on active service. The memorandum of the Federal Committee was approved. On the motion of Dr. D. P. Clement, Dr. W. Trethowan was appointed the member who had been on active service of the Arbitration Committee, and, on the motion of Dr. S. C. Moss, Dr. E. A. Officer was appointed the member who had not been on active service.

At the request of the Church of England Temperance Committee of Brisbane, the meeting considered the attitude that should be adopted by the Branch in regard to the control of the abuse of alcohol. It was resolved that a reply be sent to the committee to the effect that the Branch was of opinion that the abuse of alcohol was a cause of mental and physical incapacity, and had been a great factor in causing the rejection of men for active service. It aggravated incapacity after war service and retarded recovery. It was also a factor in the contraction of venereal disease. The Branch advocated total prohibition during the continuation of the war. It had been found that stimulants were often necessary in hospital practice, but that they were generally used sparingly. It was the opinion of the Branch that alcoholism among women was on the increase.

Dr. J. J. Holland gave notice that he was move at a subsequent meeting:—

That a medical defence fund be formed in this State.

A meeting of the New South Wales Branch was held at the B.M.A. Building, 30-34 Elizabeth Street, Sydney, on July 26, 1918, Dr. A. A. Palmer, the President, in the chair.

Dr. F. P. Sandes moved that the memorandum of the Federal Committee dealing with the obligations of the medical profession to its members who are or have been on military duty, be adopted (see *The Medical Journal of Australia*, March 2, 1918, page 180). He explained the significance of the memorandum, and also gave an account of the reasons for its adoption by the Federal Committee. In the course of his explanation he pointed out that a possible objection might be raised that the Branch already possessed an Ethical Committee, which was competent to deal with any disputes and difficulties arising in connexion with the patients and practices of medical men on active service. The Federal Committee had considered this matter, and had determined to recommend that these questions be left in the hands of a special Arbitration Committee.

In the course of a short discussion, Dr. W. F. Litchfield expressed the opinion that the proposals embodied in the memorandum should be carefully considered by the Council. He therefore proposed that it be referred to the Council, and this suggestion was subsequently modified by the addition of the condition that the Council should be authorized to take such action as it considered advisable.

The undermentioned has been nominated for election as a member of the New South Wales Branch:—

John Richard Talbot, L.R.C.P., Irel., 1908; L.R.C.S., Irel., 1908, 220 Glebe Road, Glebe.

Naval and Military.

CASUALTIES.

In the 419th list of casualties sustained by Australian troops, issued to the public on July 27, 1918, it is reported that Captain Robert Bruce Forsyth has been wounded, and that Captain David Peter Greenham has been injured. Notwithstanding the fact that the proportion of deaths recorded in the list is unusually high, being 35.9% of the total number of casualties, we are pleased to relate that the list contains no fatalities among the medical officers of the Army Medical Corps.

HONOURS.

In the *Commonwealth of Australia Gazette*, No. 110, dated July 25, 1918, an abstract from the *London Gazette* of February 12, 1918, is published, to the effect that Lieutenant-Colonel J. Gordon, A.M.C., Lieutenant-Colonel (temporary Colonel) D. M. McWhae, A.M.C., Honorary Lieutenant-Colonel J. A. Murdoch, A.M.C., and Lieutenant-Colonel (temporary Colonel) K. Smith, A.M.C., have been brought to the notice of the Secretary of State for War by the Army Council for very valuable services rendered in connexion with the war up to December 31, 1917.

We learn that Major Archibald John Collins, M.C., has been awarded the Distinguished Service Order, and that Captain Kenneth Arthur McLean, Captain Charles Eric Watson and Captain Mark Clayson Gardner have been awarded the Military Cross.

APPOINTMENTS.

The following appointments, etc., have been notified in the *Commonwealth of Australia Gazette*, No. 109, dated July 25, 1918:—

Australian Imperial Force.

Australian Army Medical Corps.

Lieutenant-Colonel J. M. Y. Stewart, D.S.O., V.D., from 15th Field Ambulance, to command 1st Australian Dermatological Hospital, and is granted the temporary rank of Colonel whilst commanding, vice Lieutenant-Colonel (temporary Colonel) K. Smith, C.M.G., who relinquished the temporary rank of Colonel on ceasing to command. 28th January, 1918. (This cancels notification regarding these officers which appeared in Executive Minute 332/1918, promulgated in *Commonwealth of Australia Gazette*, No. 70, dated 16th May, 1918.)

Major J. L. Shellshear, D.S.O., is transferred from 2nd Divisional Artillery, with seniority as Major in the Australian Army Medical Corps as from 10th September, 1914, and is granted the honorary rank of Lieutenant-Colonel as from 17th April, 1917. 3rd April, 1918.

Major (temporary Lieutenant-Colonel) H. V. P. Conrick, D.S.O., from England, to command 8th Field Ambulance, and to retain the temporary rank of Lieutenant-Colonel whilst commanding. 3rd April, 1918.

Major L. O. Betts, O.B.E., from 13th Field Ambulance, to be Senior Medical Officer, No. 2 Command Depot, Australian Imperial Force Depôts in United Kingdom, and is granted the temporary rank of Lieutenant-Colonel whilst so employed. 27th March, 1918.

Major A. F. Maclure, from 1st Australian Casualty Clearing Station, to be Surgical Specialist, 2nd Australian General Hospital, and is granted the temporary rank of Lieutenant-Colonel whilst so employed. 22nd March, 1918.

Captain G. Bell, from 3rd Australian Casualty Clearing Station, to be Surgical Specialist, 1st Australian Casualty Clearing Station, and is granted the temporary rank of Major whilst so employed. 19th March, 1918.

Major H. L. St. V. Welch, D.S.O., from 15th Field Ambulance, to command 6th Field Ambulance, and is granted the temporary rank of Lieutenant-Colonel whilst commanding. 8th April, 1918.

Captain J. K. C. Laing to be Major, 16th April, 1918.

Captain (temporary Major) C. W. Whiting, M.C., relinquished the temporary rank of Major. 15th April, 1918.

To be Colonel—

Honorary Colonel (temporary Lieutenant-Colonel) C. T. C. de Crespigny, D.S.O., Australian Army Medical Corps. 25th June, 1918.

To be Lieutenant-Colonel—

Honorary Lieutenant-Colonel A. M. Cudmore, Australian Army Medical Corps Reserve. 25th June, 1918.

To be Major—

Honorary Major B. Smeaton, Australian Army Medical Corps Reserve. 25th June, 1918.

To be Captains—

Honorary Captain M. McKenna, Australian Army Medical Corps Reserve. 13th May, 1918.

Emanuel Sydney Morris. 25th June, 1918.

Leo Bamber. 1st July, 1918.

The following appointments have been terminated:—

Second Military District—

Major N. E. B. Kirkwood, M.C. 10th July, 1918.

Sixth Military District—

Captain D. S. Henderson. 16th July, 1918.

Australian Military Forces.

His Excellency the Governor-General, acting with the advice of the Federal Executive Council, has been pleased to approve of the following awards of Decorations and Medals for Long Service, etc., being made:—

Awards of the Colonial Auxiliary Forces Officers' Decoration.

Australian Army Medical Corps—

Major (Honorary Lieutenant-Colonel) C. C. MacKnight.

The following promotion for specially meritorious service during the present war is announced, under the date of June 3, 1918:—

To be Honorary Colonel—

Captain (Brevet Lieutenant-Colonel) Sir R. N. Howse, V.C., K.C.B., Australian Army Medical Corps Reserve.

To be noted for the Brevet Rank of Lieutenant-Colonel on Promotion to the Substantive Rank of Major—

Captain A. M. Wilson, Australian Army Medical Corps, Third Military District.

Captain J. B. F. McKenzie, Australian Army Medical Corps, Second Military District.

Captain W. L. Crowther, Australian Army Medical Corps, Sixth Military District.

The following promotions, etc., are announced:—

First Military District.

Australian Army Medical Corps—

Major (Honorary Lieutenant-Colonel) A. Horn is transferred to the Australian Army Medical Corps Reserve. 27th May, 1918.

Australian Army Medical Corps Reserve—

Honorary Major J. A. Murphy is transferred to the Australian Army Medical Corps, and to be Captain and Honorary Major. 1st July, 1918.

Honorary Captain N. N. Davis is transferred to the Australian Army Medical Corps Reserve, Fifth Military District. 3rd June, 1918.

The resignation of Honorary Captain P. C. Higgins of his commission is accepted. 30th June, 1918.

Second Military District.

Australian Army Medical Corps Reserve—

Arthur Ernest John Scott to be Honorary Captain. 28th May, 1918.

William Leahy to be Honorary Captain. 17th June, 1918.

Third Military District.

Australian Army Medical Corps—

The grant of temporary rank of Major to Captain (provisionally) S. G. L. Catchlove is terminated. 31st May, 1918.

Australian Army Medical Corps Reserve—

The resignations of Honorary Captains C. E. Allen and J. C. Kennedy of their commissions are accepted. 30th June, 1918.

Fourth Military District.

Australian Army Medical Corps Reserve—

Henry George to be Honorary Captain. 5th June, 1918.

The temporary rank of Major granted to Honorary Captain W. A. James is terminated. 7th July, 1918.

Fifth Military District.

Australian Army Medical Corps Reserve—

Honorary Captain N. N. Davis to be transferred from the Australian Army Medical Corps Reserve, First Military District. 3rd June, 1918.

Sixth Military District.

Australian Army Medical Corps Reserve—

The appointment of Harry Christian Watson to be Honorary Captain is withdrawn.

Public Health.

NEW SOUTH WALES.

The following notifications have been received by the Department of Public Health, New South Wales, during the week ending July 20, 1918:—

	Metropolitan District.	Hunter River District.	Rest of State.	Total.
	Cs. Dths.	Cs. Dths.	Cs. Dths.	Cs. Dths.
Enteric Fever ..	3 1 ..	0 0 ..	5 0 ..	8 1
Scarlatina ..	11 0 ..	0 1 ..	10 0 ..	21 1
Diphtheria ..	43 0 ..	10 2 ..	56 1 ..	109 3
*Pul. Tuberculosis	21 6 ..	1 0 ..	6 0 ..	28 6
C'bro-Sp'l Mening.	1 1 ..	2 0 ..	1 1 ..	4 2

* Notifiable only in the Metropolitan and Hunter River Districts, and, since October 2, 1916, in the Blue Mountain Shire and Katoomba Municipality.

VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, during the week ending July 21, 1918:—

	Metropolitan.	Rest of State.	Total.
	Cs. Dths.	Cs. Dths.	Cs. Dths.
Enteric Fever ..	0 0 ..	1 0 ..	1 0
Scarlatina ..	40 0 ..	30 0 ..	70 0
Diphtheria ..	84 3 ..	90 0 ..	174 3
Pulmonary Tuberculosis	18 4 ..	5 4 ..	23 8
C'bro-Spinal Meningitis	1 — ..	0 — ..	1 —
Poliomyelitis ..	1 — ..	1 — ..	2 —

QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ending July 20, 1918:—

Disease.	No. of Cases
Enteric Fever ..	4
Scarlatina ..	14
Diphtheria ..	78
Pulmonary Tuberculosis	7
Erysipelas ..	3
Puerperal Fever ..	2
Bilharziosis ..	1

SOUTH AUSTRALIA.

The following notifications have been received by the Central Board of Health, Adelaide, during the fortnight ending July 20, 1918:—

	Adelaide.	Rest of State.	Total.
	Cs. Dths.	Cs. Dths.	Cs. Dths.
Enteric Fever ..	0 0 ..	1 0 ..	1 0
Scarlatina ..	3 0 ..	25 0 ..	28 0
Diphtheria ..	2 1 ..	78 2 ..	80 3
Pulmonary Tuberculosis	5 3 ..	8 6 ..	13 9
C'bro-Spinal Meningitis	0 1 ..	0 0 ..	0 1
Erysipelas ..	0 0 ..	12 0 ..	12 0
Morbili ..	0 0 ..	5 0 ..	5 0
Pertussis ..	2 0 ..	21 0 ..	23 0

WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health, Western Australia, during the fortnight ending July 6, 1918:—

Diseases.	Metro-politan. Cases.	Rest of State. Cases.	Totals. Cases.
Enteric Fever	1	1	2
Scarlatina	47	11	58
Diphtheria	36	18	54
Pulmonary Tuberculosis	9	4	13
Septicæmia	1	1	2
Erysipelas	2	3	5
Hæmaturia	0	1	1

TASMANIA.

The following notifications have been received by the Department of Public Health, Tasmania, during the week ending July 20, 1918:—

Diseases.	Hobart. Cases.	Launceston. Cases.	Country. Cases.	Whole State. Cases.
Enteric Fever	0	0	1	1
Scarlatina	0	1	0	1
Diphtheria	0	3	7	10
Pulmonary Tuberculosis	1	0	0	1
Poliomyelitis	0	0	1	1
Ophthalmia Neonatorum	1	1	0	2

NEW ZEALAND.

The following notifications have been received by the Chief Health Officer, Department of Public Health, Hospitals and Charitable Aid, New Zealand, for the four weeks ending June 24, 1918:—

Diseases.	No. of Cases.
Scarlatina	174
Diphtheria	681
Enteric Fever	29
Pulmonary Tuberculosis	105
Poliomyelitis	1
Puerperal Fever	10
Erysipelas	6
Cerebro-Spinal Meningitis	3
Trachoma	1
Septicæmia	2
Hydatids	5
Ophthalmia Neonatorum	2

THE HOSPITALS FOR THE INSANE IN QUEENSLAND.

The annual report of the Inspector of Hospitals for the Insane in Queensland for year 1916 was submitted to Parliament last winter, and was printed for general circulation in October, 1917. Owing to its considerable length we have been unable to deal with this report at an earlier date. It is made up of a report by the Medical Superintendent of the Hospital for the Insane at Goodna, with 14 statistical tables, a report of the Medical Superintendent of the Hospital for the Insane at Toowoomba, with 14 statistical tables, a report of the Medical Superintendent of the Hospital for the Insane at Ipswich, with 14 statistical tables, and lastly, a general report by the Inspector of Hospitals for the Insane with three statistical tables. The volume is profusely illustrated, and ground plans of new buildings at Goodna are also reproduced.

Hospital for the Insane, Goodna.

On the first day of the year there were 1,340 patients in the Hospital at Goodna. In addition, 29 patients were on leave. During the year 394 patients were admitted either for the first time, or for the second or subsequent time, or as transfers from other institutions. The number of patients discharged from the Hospital or transferred to other hospitals was 224, and the number of deaths was 102. The average number of patients in the Hospital at one time was 1,399. There were 57 more patients in the Hospital at the end of the year than at the beginning. This increase was caused by the larger number of admissions and re-admissions and by the smaller number of patients discharged or transferred. The average number of patients in the Hos-

pital at any given time has risen gradually since 1909, when it was 1,199, or 200 less than in 1916.

The number of persons admitted during the year, who, as far as could be ascertained, had not been certified as insane previously, was 328. Notwithstanding this fact, no fewer than 90 of the total number of patients admitted had had a previous attack of insanity. Of these 65 were entered as re-admissions, leaving 25 admitted for the first time with a history of recognizable insanity in the past. It is usually for psychiatrists to refer to previous attacks as a predisposing cause of insanity. Surely a person does not become insane because he had been insane before, but either because the cause of the previous attack has been persistent or recurrent, or because the insanity has only been dormant and has become manifest again through some active occurrence. Dr. Ellerton, the Medical Superintendent, records that heredity was ascertained to be present in only 56 persons of those admitted during the year. He holds the opinion strongly that heredity is often present, when no record is available. The lack of medical officers and the fact that some medical officers who had not had any training in psychiatry, had been engaged temporarily during the year, contributed to the failure to carry out a full investigation concerning the existence of insanity in the family in many cases. The third alleged predisposing cause cited is age. In this Dr. Ellerton follows usage. Age is not and can never be a cause of any pathological condition. At certain epochs of life the individual may be increasingly susceptible to given noxes. He refers to the fact that there were 24 cases of congenital mental disease without epilepsy, 7 cases of congenital mental disease with epilepsy, and 8 cases of congenital criminality. The age of the patients had nothing to do with the mental defect. A pathological defect in the development of the mental faculties necessarily becomes manifest at a young age, but the predisposing cause must be sought in some disease or vicious habit of the parents. Again, he cites the senility forms of insanity as being due to age. Old age and unimpaired mental capacity are normal associates. When the mental processes fall, there must be something pathological—not physiological—to account for the impairment.

In the next place, he divides the exciting causes, again in accordance with precedent, into the physical and the moral. The physical included 48 cases in which alcohol was the cause. The other physical causes summed together accounted for 89 cases. Only two cases of general paralysis of the insane were included. He does not give any indication of the number of cases in which syphilis played an etiological part. The second category included 42 instances in which worry is stated to have acted as an exciting cause. In 17 cases mental worry connected with the war was detected. Dr. Ellerton has made the interesting observation that the majority of the patients in these instances were persons of German origin or descent. Only five cases were in soldiers who had been on active service. Religious excitement and love affairs is stated to have accounted for 14 cases of insanity. It appears to be open to question whether psychiatrists are justified in accepting the evidence leading to these conclusions. Religious excitement may contribute to the obvious manifestation of the insanity, but it is by no means certain that the mental disturbance did not manifest itself in the excitement which is alleged to be its cause. Love affairs which terminate in insanity may exist, but in some instances what is termed love may be a symptom of a mental affection. Lastly, we are told that in 10 instances irregular life and in 4 isolation, shock and fright were the exciting causes. Dr. Ellerton protects himself skilfully against being challenged concerning these moral exciting causes, by stating that no one cause is usually fruitful in producing insanity, but that a number of causes are necessary.

The most common group of mental affections was maniacal-depressive insanity. There were 234 cases. Recurrent, alternating, confusional and stuporose insanities accounted for 89 admissions. The mental depressions numbered 52. There were 20 cases of acute and 9 of chronic alcoholic insanity, nine cases of progressive systematized delusional insanity, four of general paralysis of the insane, 23 of dementia præcox, 53 of senile dementia, 24 of epilepsy and 16 cases of other congenital mental affections.

The condition of the patients on admission was registered as good in 114 cases, as indifferent in 143 and as bad in 136. The age of the patients on admission did not differ materially from that usually experienced. The greatest number was in the fourth decade of life, while the third and the fifth produced a quota but little behind the fourth. The number of persons of under 45 years of age admitted during the year was 225 and of those over 45 years was 167. Details are given concerning the districts from whence the patients came, their religious persuasions and their birthplaces. The importance of these data is not evident. The previous occupation of the patients has a greater significance, but unless the relative frequency of each occupation can be ascertained and compared with the proportion of the patients following each calling to the total number of admissions, too much attention should not be paid to this information. Over one-third of the male patients admitted to the Hospital were general labourers. Probably over one-third of the male population of the districts from which these patients were derived, also followed the calling of a general labourer. Similarly, there were 90 females who had followed the state and occupation of housewife. It would be interesting to know whether any correlation exists between an occupation and a definite form of insanity, and if this were found to be the case, whether the occupation contributed to the development of the insanity, or whether the insanity led the individuals to choose a particular occupation. It would not be difficult to cite some instances in which the latter assumption might obtain.

During the course of the year, 189 patients were discharged "recovered." This figure represents 48.09% of the number of patients admitted. We have repeatedly pointed out that the recovery rate calculated on the basis of a percentage of the total number of patients admitted is no indication of the frequency of cure. The rate was lower in 1916 than in 1915, but higher in the former year than in 1914. It does not follow, however, that more cures were effected in 1915 than in the other two years. Dr. Ellerton points out that these figures are further complicated by the fact that many of the patients are received from the reception houses at South Brisbane, Rockhampton and Townsville and, further, that all the patients admitted to the Ipswich Asylum are transferred from Goodna.

It appears that four-fifths of the patients discharged had been in the Hospital for under six months. Approximately one-sixth of the patients had been in the Hospital between one and three years and only seven had been in for a longer period. One patient was discharged "recovered" after 20 years' residence. The ages of the patients at discharge naturally corresponded closely to the ages of the patients on admission. Dr. Ellerton points out that "recoverable" mental disease occurs in greatest numbers between the ages of 20 and 50. Two persons under the age of 20 were discharged. There were 40 who were discharged in the third decade of life, 52 in the fourth, 39 in the fifth and 36 in the sixth decade.

In addition to those discharged "recovered," four patients were discharged relieved and five were discharged without any improvement having been registered. On the first day of the year 29 patients were on leave of absence and were staying with their relatives. During the course of the year, 172 were allowed out on leave, bringing the total up to 201. Of these, 85 were discharged, some "recovered," some relieved and some not improved, while 75 returned from leave during the course of the year. One patient died while on leave, but the death is included among those of the patients of the Hospital. About one-third of the patients who were discharged were on leave of absence prior to their discharge. Dr. Ellerton emphasizes the benefit of sending patients to their relatives when this amount of freedom is likely to contribute towards their recovery.

The total number of deaths was 102, which is 33 fewer than in the preceding year. The death-rate, calculated as a percentage of the average number of patients in residence, was 7.29%. In 1915 the rate was 9.56%. Of the 102 patients who died, 45 had been in the Hospital for less than one year, nine had been in between one and two years, five between two and three years, 14 between three and five years, five between five and ten years, 14 between 10 and 20 years and eight over 20 years. Seventy-three of the patients were between 40 and 70 years of age at the time of death and 25

were under 40 years. The average age of death was 52. Death was caused in 39 instances by the disease of the nervous system, in four cases it was due to general paralysis of the insane, in seven to epilepsy and in 21 to exhaustion resulting from acute mania and melancholia. There were two deaths from cerebral hemorrhage and one each from meningitis and cerebral softening. In addition to the two deaths from cerebral hemorrhage there were four due to other affections of the cardio-vascular system. Among 16 deaths from diseases of the respiratory system, nine were due to pulmonary tuberculosis. Diseases of the alimentary tract accounted for six deaths and senility accounted for 24. One female patient committed suicide by hanging.

A considerable number of patients endeavoured to escape from the institution during the year. The attempt was successful on 15 occasions. Information is given concerning the recapture of 10 of these patients. Dr. Ellerton very rightly lays stress on the fact that if escapes are to be prevented, greater restraint than is desirable from a therapeutic point of view would have to be imposed on the patients.

During the course of the year 1916 various changes took place in the medical staff. Dr. Caldwell resigned the position of Third Assistant Medical Superintendent in March, and Dr. J. J. Stuart McEvoy resigned the position of Second Assistant Medical Superintendent in May. We sympathize with the authorities in their difficulties in obtaining substitutes for those medical officers who left the service. The supply of medical practitioners competent to undertake the positions is at present extremely limited. Unfortunately sufficient care was not exercised in the selection of some of the medical officers appointed as substitutes.

The total expenditure amounted to £64,147, while the net expenditure amounted to £57,439. The net cost per patient per week was 15s. 9½d.

Hospital for the Insane, Toowoomba.

The Medical Superintendent, Dr. J. B. Nicholl, issues a short report dealing with the Hospital at Toowoomba for the year 1916. On January 1 there were 746 persons on the register. During the 12 months 88 patients were admitted. Of these, 58 were admitted for the first time during the year, 21 were re-admitted and one was transferred from Goodna. Dr. Nicholl points out that only one of the 21 patients who had been re-admitted, had been discharged as "recovered." The remaining 20 had been discharged previously as "relieved." In 26 of the 58 patients admitted for the first time the attack had lasted less than three months at the time of admission. In eight it had lasted less than 12 months.

The form of mental disease from which the patients admitted during the year were suffering, is summarized as follows: Mania 45 cases, melancholia 20 cases, dementia seven cases, general paralysis of the insane two cases, epileptic insanity two cases and congenital mental deficiency one case. Heredity is given as the cause of seven instances of insanity, alcoholic excess of eight, critical periods of eight, childbearing of five and dengue of seven. The last named alleged cause is singularly interesting. Dr. Nicholl states that in some districts from which the patients were sent dengue was prevalent. It would be interesting to learn on what grounds this disease was held responsible for the mental affection. In certain infective processes associated with acute toxæmia and high fever the patient emerges from the acute stage in a condition of dementia. In these cases it is doubtful whether the specific nature of the infective process is of importance. From the clinical manifestations it would appear that the severity of the intoxication determined the mental changes.

The number of patients discharged during the year was 42. Of these, 32 were said to have "recovered," six were said to have been relieved and four were not improved. Those patients who were discharged included 16 who were on leave. Ten other patients returned to the Hospital after having been on leave, while 25 were allowed to remain with their relatives. The number of deaths was 26. This is equivalent to a death-rate of 4.81%. In only four of the fatal cases was death ascribable to the disease of the nervous system. No suicide or serious accident occurred during the year, and all the patients who escaped, were recaptured within a short time. The net cost for maintenance per patient per week was 14s. 2½d.

Hospital for the Insane, Ipswich.

Dr. Ernest C. Jennings, the Medical Superintendent of the Hospital for the Insane, Ipswich, gives brief details concerning the patients in his special report. The following information is culled from the tables appended thereto.

On the first day of the year there were 326 patients in the Hospital. During the course of the year 25 patients were transferred from the Hospital for the Insane at Goodna. One patient was transferred from this Institution to another hospital. Two patients were discharged "recovered" and 16 died. The average number of patients in residence was 330. Of the 25 persons admitted, six were suffering from mental affections said to be due to domestic trouble, worry or religious excitement. In regard to the physical causes, alcohol was incriminated once, opium twice and epilepsy once. The mental disease was of unknown cause in ten instances. This figure might have been altered to 15, inasmuch as a previous attack and the recognition of congenital defects are given as physical causes in five cases.

Of the 16 deaths, only one was due to a disease of the central nervous system. In three cases senile decay was the alleged cause of death.

The form of insanity of those admitted during the year was dementia in 14 cases, delusional insanity and imbecility in four each, and chronic mania in three cases.

General Report.

The Inspector of Hospitals for the Insane, Dr. H. Byam Ellerton, deals in some detail with the Goodna Hospital for Insane as an institution. The new hospital block opened during the year is the fourth instalment to the reconstruction of the old institution. Three new blocks for male patients were opened in 1915. The fourth is a hospital block, and contains surgical and medical wards and an operating room. One verandah ward is set aside for males and one for females. The hospital block is under the care of a matron experienced in the nursing of mental patients and of persons suffering from other forms of disease. The nurses are exclusively female nurses. Dr. Ellerton has found on enquiry that the plan of employing female nurses in the hospital wards of an institution for the insane has worked excellently in Scotland and also in a large institution in New South Wales. Those patients who are physically sick, but who are offensive in their behaviour and are likely to disturb the other patients, are nursed in the ordinary asylum wards by male attendants. One male attendant acts as wardman in the hospital block.

A new female admission ward was completed in the course of a year. The building contains dining and sitting rooms, an open dormitory, single rooms for noisy, violent or dirty patients, kitchen and other offices. Plans have also been submitted for the erection of three more wards for male patients.

The new wards are connected up with a septic tank, and are provided with water closets with flushes. This system has proved a success and consequently a second, larger septic tank is in the course of construction. This will receive the sewerage from the remaining 15 wards of the Hospital. A new power house, a new kitchen and a new laundry are also being erected. New administrative offices are being constructed and a new isolation hospital is also under contemplation. In addition, several other innovations have been introduced.

At the time of the opening of the new hospital block an Honour Board was unveiled by the Home Secretary.

On the 12th of January, 1916, a fire broke out in the kitchen, and that building, as well as the laundry, were burnt. The activity of the members of the staff saved the adjoining buildings and the rest of the institution.

Dr. Ellerton also deals with the conditions obtaining at the Toowoomba Hospital for the Insane and at the Ipswich Hospital for the Insane. In addition to some details concerning the patients, he describes the alterations which have been undertaken in the buildings. At the Toowoomba Hospital four new wards are in the course of construction. These buildings have been planned according to the pattern adopted at Goodna. In addition, the construction of a septic tank and the fitting of a water closet system is being undertaken. New recreation grounds are being prepared by the labour of the inmates. At the Ipswich Hospital a new hospital ward and three small wards are being erected.

Reception Houses.

There are three Reception Houses in Queensland. At the South Brisbane Reception House there were no patients in residence on the first day of the year. During the following nine months 96 patients were admitted. On September 30, 1916, this Reception House was closed. Two patients were discharged "recovered" and the remaining 94 patients were transferred to the Goodna Asylum. At the Rockhampton Reception House there were two patients in residence at the beginning of the year and 78 were admitted during the course of 1916. Of the 80 patients, 30 were discharged recovered. The recovery rate for 1916 was 38.71 and for 1915 33.92. Eight patients were in the Reception House on the last day of December and, presumably, the remaining 42 had been transferred to the Goodna Asylum.

At the Townsville Reception House there were eight patients in residence at the beginning of the year, and 106 were admitted during the year. Dr. Ellerton points out that the number of patients admitted to this Reception House indicates that North Queensland would provide a sufficient number of insane patients to keep an institution of the same size as the Hospital at Toowoomba permanently full. The number of persons discharged from the Townsville Reception House was 19, of whom 15 were discharged "recovered." Two patients died.

The Prophylaxis of Insanity.

Dr. Ellerton appends to his report a philosophical essay on the rôle of institutions for the care of the insane, and on the means that might be adopted to combat insanity. He states that the heavy expenditure entailed by the upkeep of modern mental hospitals, associated with a well-grounded fear that this expenditure must continue to increase, is a source of concern to every governing body. The only way to meet this difficulty is to endeavour to apply prevention. With this object in view, he subjects the subject of causation of insanity to a general analysis. It appears to him that civilization, with all its stress of life, is the most important factor, but on further enquiry he comes to the conclusion that the stresses of life are insuperably greater among savage races than among modern civilized nations. In modern civilization the individual receives every care, while, among the savage races, the community comes first and the weaker individuals go to the wall. Under the conditions of modern civilization, the weak individual is kept alive and patched up and allowed to procreate and produce offspring having a predisposition to various ailments and diseases. Having arrived at the conclusion that heredity plays the most important part in the production of insanity, he quotes from various documents issued in the United States of America, the methods adopted to prevent the perpetuation of mental defectives. In Indiana a Board of Examiners have legal power to perform desexing operations on criminals, idiots, imbeciles and rapists. In Iowa the same applies, but the list is longer and includes, in addition, drunkards, drug fiends, epileptics and syphilitics. In New Jersey a similar law exists, but it is definitely laid down that only those who cannot recover and whose procreation is not advisable, may be operated upon. In California the operation may be performed on an inmate or patient in the hospitals for the insane or homes for the feeble-minded, or on a convict in a State prison, if it can be shown that it would be "beneficial and conducive to the benefit of the physical, mental or moral condition of any inmate of the said hospitals, home or State prison." The law in Washington provides, in addition to any other punishment, for the performance of an operation for the prevention of procreation upon any person adjudged guilty of carnal abuse of a female person under the age of ten years, or of rape, or adjudged to be an habitual criminal. More or less similar laws exist in Connecticut, New York, Utah and other States of America. The operation proposed is vasectomy in the male and oöphorectomy in the female. In the State of Washington it has been determined that the operation is not cruel.

In conclusion, Dr. Ellerton deals with the frequency of insanity in Queensland, and publishes a table containing the statistics from the year 1874. The number of persons certified as insane has increased from 300 in that year, to 2,517 in 1916. The proportion of insane to 1,000 of population was 1.83, in 1874, and 3.69, in 1916. During the past 12 years the rate has remained practically unchanged. A comparison

with the other States of Australasia shows that the proportion of insane to each 1,000 of population was lowest in Tasmania (2.68) and in South Australia (2.68), and highest in Victoria (4.20). In New South Wales it was 3.94, in New Zealand it was 3.96%, and in Western Australia it was 3.38.

Correspondence.

NURSES AND RADIOGRAPHY.

Sir,—In this week's *Journal*, in commenting on a suggestion of Dr. Herschel Harris, you invite views on the training of nurses as Röntgenological technicians. Some years ago Dr. Bolger presented to the private portion of the Lewisham Hospital a complete X-ray plant, and one of the sisters was told off to learn the work. The plan has been a great success, and when Dr. Bolger is not present at the hospital this sister can take a skiagram most successfully. At the same time, she has been instructed by Dr. Mary Burfitt, who has charge of the Pathological Department, and now she is also of great use in that department. This goes to show that the suggestion that Dr. Herschel Harris has put forward, that nurses can be trained for special departments in hospitals, is a sound one, and I have no doubt that many country hospitals would set up X-ray plants if they could be sure of getting efficient nurses to work them.

Yours, etc.,

W. J. STEWART McKAY.

227 Macquarie Street, Sydney,
July 26, 1918.

Sir,—The only objection that can be raised to the training of nurses in radiography is that of the danger of encouraging unqualified persons in the practice of radiography.

Recently a man was trained as a radiographic technician at the No. 4 Australian General Hospital, and when he became a fairly efficient operator, he obtained his discharge from the Australian Military Forces and commenced "practice" in Sydney as an "X-ray specialist," and I believe there are medical men who support his "practice."

The cure of this evil is simple, viz., medical men must refuse to support these men.

Years ago, the Australian Medical Congress recognized the danger of allowing laymen to practice radiography, and ruled that members should only send radiographic work to qualified practitioners.

Why should the British Medical Association not pass a rule forbidding members to employ these unqualified "practitioners"?

Might I further add that the Department of Public Health insist on a minimum standard of protection to operator and patient in all X-ray installations in hospitals? At present, I am afraid that very few hospitals outside the metropolitan area are equipped with protective apparatus, and, if the lay operator is to be widely used in country districts, the possibility of serious accidents will increase.

Yours, etc.,

J. G. EDWARDS.

"Craighish," Macquarie Street, Sydney,
July 30, 1918.

THE SYDNEY SANITARIUM, WAHROONGA.

Sir,—Having lately made a short stay at the above institution, I think a short account of my experiences may interest some of your readers. I had worked myself to a standstill in a suburban industrial practice, with the added joy of a left sciatica, which felt like the exposed nerve of a decayed molar. For the first two or three days after my arrival, I lay about on sofas when I was not in bed, sleeping about 20 hours in the 24. A more perfect spot could not be imagined for persons suffering from overwork, and requiring rest and quiet. The building is large and handsome, of three stories, with spacious verandahs. It stands on an elevation of over 600 feet above sea level, surrounded by beautiful grounds, with delightful scenery round about.

The treatment consists of hydrotherapy, massage, and electricity daily, with special local treatment where required.

Every morning I was placed in an electric light cabinet, with iced pack to my head and neck, until the temperature inside rose to about 200°, by which time I was perspiring profusely. From there to the bath, where a hot, high-pressure douch is applied to spine, legs, etc., for several minutes, cooling off to a cold spray. From there to the massage table, the whole treatment lasting nearly an hour. At night the attendant applies a very large hot pack to the part affected, followed by antiphlogistine, and a hot water bag for the night.

A few days of this simple treatment, coupled with rest and strict, purin-free diet, worked wonders. Each day one felt an advance towards health and activity. Directly I was strong enough, I took part in the physical culture exercises which are held after each meal, in the drawing-room during the day, with a more elaborate course in the gymnasium after the evening meal. A talented pianist (Mrs. Smith) attached to the institution, who also gives recitals, conducts these to music, which makes them really enjoyable. I advise anyone staying here to make a point of attending these, as they are an important part of the course.

There are no cards, billiards, alcohol, or tobacco, but no one seems dull. Everyone is bright and happy, and the time passes quickly. I heard a good deal of high-class music during my stay, as many of the leading musicians come up for treatment, and generously entertain the others. Outside is tennis and croquet, and two motor cars are attached to the institution.

In conclusion, I feel my indebtedness for my speedy restoration to health, and I can recommend any of my colleagues to follow my example under the same circumstances.

Yours, etc.,

A. W. GORDON.

Mary Street, Auburn, N.S.W.,
July 26, 1918.

Obituary.

JOHN HAMILTON FOLEY.

We regret to announce the death of John Hamilton Foley, which took place in Brisbane on July 9, 1918. He was born in 1856, in the West of Ireland, and was educated at Enniskillen. He studied medicine at Dublin, and at the age of 27 years he obtained the qualification of the Royal College of Surgeons of Ireland. Two years later he took the license of the King and Queen's College of Physicians. He settled in practice in Hampshire, and later he moved to other parts of England. At the beginning of the Boer war he served as a naval surgeon at Portsmouth. About the year 1904 his health became unsatisfactory, and he sought alleviation in Australia. He arrived in Queensland in 1905, and took a hospital position at Bowen. In April of 1907 he went to Victoria, where he practised at Quambatook. Later he went to Howell and Coff's Harbour, in New South Wales, and in 1911 he returned to Queensland, and selected Sandgate as the place for his settled practice. In the course of the following years he built up a valuable practice, and he became very popular among his patients. He took an active part in the social and intellectual undertakings of the locality. John Hamilton Foley was a staunch patriot, and earned the respect and admiration of his colleagues and friends. Three of his brothers are also members of the medical profession.

Proceedings of the Australian Medical Boards.

VICTORIA.

The following entry has been made in the Register of legally qualified medical practitioners, in accordance with the provisions of the *Medical Act, 1915*, of Victoria:—

Smith, Harold Gengoult, 71 Collins Street, Melbourne, L.R.C.P. et S. Edin.; L.R.F.P.S. Glas., 1917.

The following names of deceased practitioners have been removed from the Register:—

Francis Joseph Keyes.
Allan Godwin Jackson.
James Buick.

Medical Appointments.

Dr. R. Wreyford Lawrence (B.M.A.) has been appointed Public Vaccinator for the North-Eastern District, and Dr. S. B. Helwig for the Metropolitan District, Victoria.

At a meeting of the Medical Faculty of the Adelaide University, held on July 18, 1918, Dr. J. Corbin (B.M.A.) was appointed Acting Lecturer in Clinical Surgery during the absence of Dr. A. M. Cudmore (B.M.A.); Dr. F. Steele Scott (B.M.A.) was appointed Acting Surgical Tutor during the absence of Dr. B. Smeaton (B.M.A.), and Dr. Helen Mayo (B.M.A.) was appointed Acting Lecturer in Pathology and Practical Pathology during the absence of Dr. C. T. C. de Crespigny (B.M.A.).

Dr. H. B. Ellerton (B.M.A.) has been appointed Medical Inspector and Dr. J. R. Nicoll (B.M.A.) Medical Superintendent of the Epileptic Home, Willowburn, Queensland.

Dr. C. A. MacKechnie (B.M.A.) has been appointed a Medical Referee for the purposes of *The Workers' Compensation Act of 1916* for the whole of the State of Queensland.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xv.

In future, no advertisements inviting applications from medical practitioners for positions in public institutions will be accepted unless the appointment is limited to medical practitioners who are ineligible for military service, or who have returned from military service. The term "ineligible for military service" is used to signify practitioners who are above military age, those who have offered their services and have not been accepted by the military authorities, or those who, for valid reasons, are incapable of applying for a commission in the Australian Army Medical Corps.

Winton Hospital, Queensland, Surgeon.

Renwick Hospital for Infants, Sydney, Honorary Assistant Physician and Resident Medical Officer.

Lewisham Hospital, New South Wales, Honorary Ophthalmic Surgeon.

Laboratory of Microbiology and Pathology, Brisbane, Temporary Junior Assistant.

Medical Appointments.

IMPORTANT NOTICE

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	All Friendly Society Lodges, Institutes, Medical Dispensaries and other contract practice. Australian Prudential Association Proprietary, Limited. National Provident Association. Life Insurance Company of Australia, Limited. Mutual National Provident Club.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Brisbane United Friendly Society Institute. Townsville Friendly Societies' Medical Union. Cloncurry Hospital.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	Contract Practice Appointments in South Australia. Contract Practice, Appointments at Renmark.

Branch.	APPOINTMENTS.
WESTERN AUSTRALIA. (Hon. Sec., Health Department, Perth.)	All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Balmmain United F.S. Dispensary. Canterbury United F.S. Dispensary. Leichhardt and Petersham Dispensary. M.U. Oddfellows' Med. Inst., Elizabeth Street, Sydney. Marrickville United F.S. Dispensary. N.S.W. Ambulance and Transport Brigade. North Sydney United F.S. People's Prudential Benefit Society. Phoenix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Parramatta, Auburn and Lidcombe. Newcastle Collieries — Killingworth, Seaham Nos. 1 and 2, West Wallsend.
TASMANIA. (Hon. Sec., Macquarie Street, Hobart.)	Medical Officers in all State-aided Hospitals in Tasmania.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington, N.Z.

Diary for the Month.

- Aug. 7.—Federal Committee of the British Medical Association in Australia (Sydney).
 Aug. 7.—Vic. Branch, B.M.A.
 Aug. 9.—S. Aust. Branch, B.M.A., Council.
 Aug. 9.—N.S.W. Branch, B.M.A., Clinical.
 Aug. 13.—Tas. Branch, B.M.A., Council and Branch.
 Aug. 13.—N.S.W. Branch, B.M.A., Ethics Committee.
 Aug. 14.—North Eastern Med. Assoc. (N.S.W.).
 Aug. 15.—Vic. Branch, B.M.A., Council.
 Aug. 15.—City Med. Assoc. (N.S.W.).
 Aug. 20.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
 Aug. 21.—W. Aust. Branch, B.M.A.
 Aug. 23.—Q. Branch, B.M.A., Council.
 Aug. 27.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
 Aug. 28.—Vic. Branch, B.M.A., Council.
 Aug. 29.—S. Aust. Branch, B.M.A.
 Aug. 30.—N.S.W. Branch, B.M.A.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.

The Honorary Librarian of the New South Wales Branch of the British Medical Association is anxious to complete the series of the *Lancet* at present in the Library of the Branch. The issues of January 4 and 25, March 14 and August 15, 1908, and January 9, 1909, are needed for this purpose. The Librarian will be grateful if any member who is able to present to the Library one or more of these numbers, will communicate with the Honorary Secretary of the Branch, Dr. B. H. Todd, B.M.A. Building, 30-34 Elizabeth Street, Sydney.